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THE Apple's Powerful 68030 Machine

MacUser

November 1988

\$3.95 \$4.95 CANADA

A WRITER'S GUIDE TO WORD PROCESSORS:

Exploring
the Top 7

Secrets of
WordPerfect

Sneak Peeks at
Word 4.0 and
WriteNow 2.0

SYSTEM 6.0

Pros and Woes

MATHEMATICA

Waiting for Gödel

PHOTO RETOUCHING

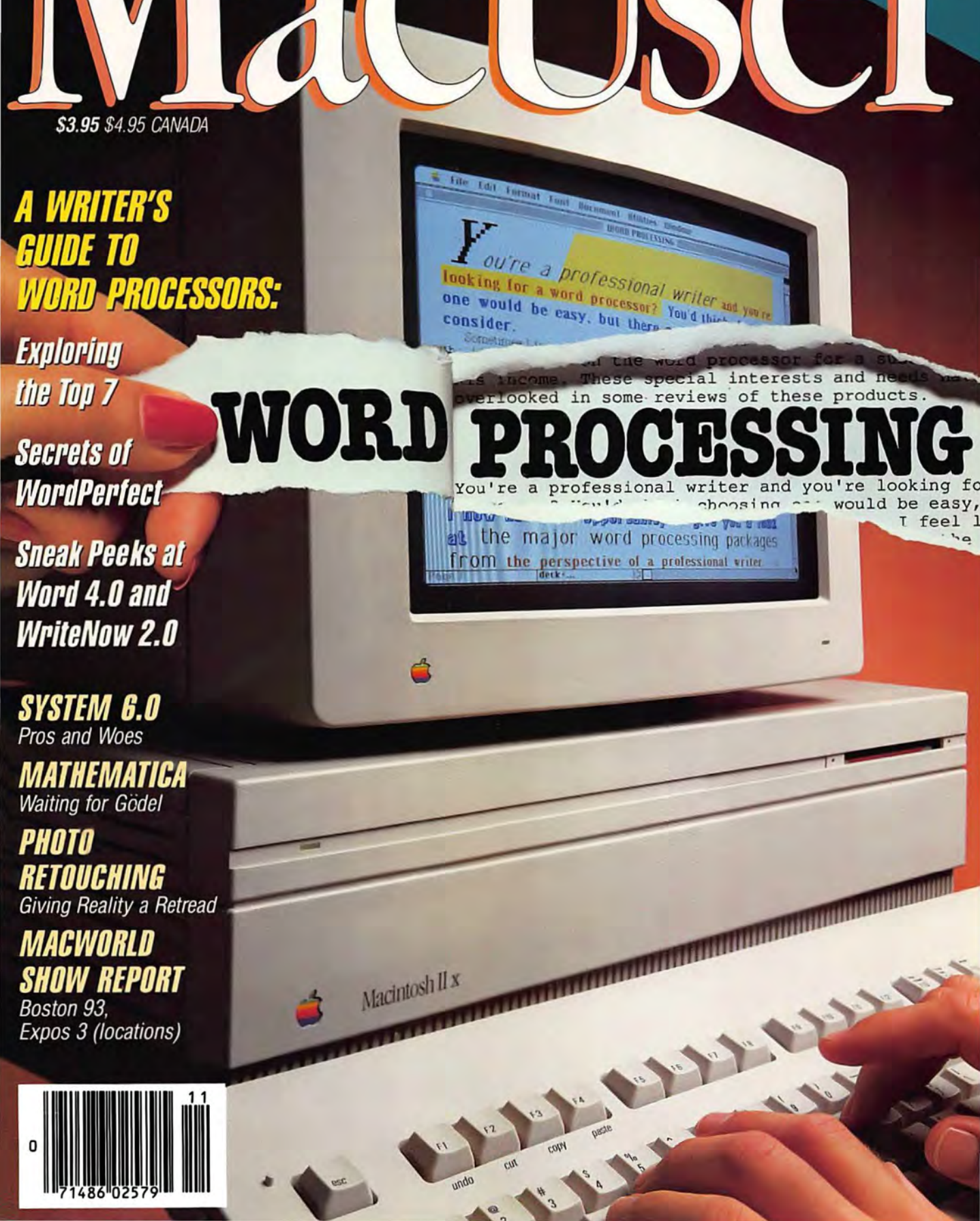
Giving Reality a Retread

MACWORLD SHOW REPORT

Boston 93,
Expos 3 (locations)

WORD PROCESSING

You're a professional writer and you're looking for a word processor. You'd think it would be easy, but there are a lot of choices. I feel like I've been at the major word processing packages from the perspective of a professional writer.

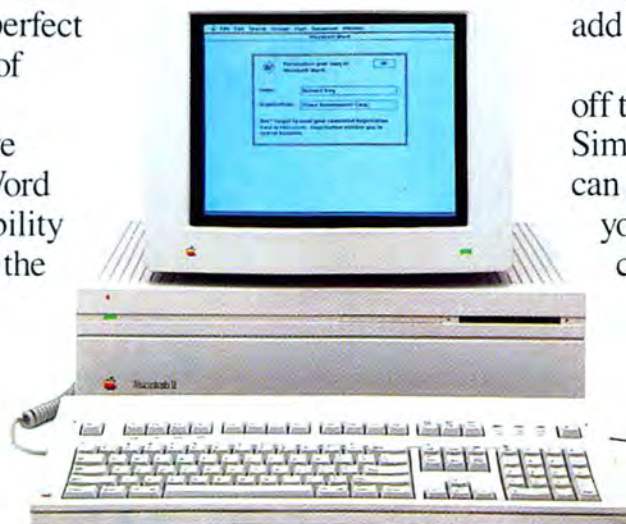


Your passport to

We have yet to meet the word processor that's perfect for everyone right out of the box.

Which is why we've built into Microsoft Word version 3 the unique ability to be customized to fit the way you work.

From modifying menus to filing away frequently used formats to designing your own dictionary, Word gives you more ways to turn our word processor into your word processor.



From the moment you turn it on, Microsoft Word lets you know it's yours and yours alone.

favorite format? Just add them to your menus.

Want to take Monaco off the frequent font list? Simply delete it. You can still use it whenever you want to; it's just not cluttering up your menu.

And Word's menus are so easy to customize, you can make a change in less time than it takes to read this sentence.

You might say they're your passport to easier writing.

Don't like what's on the menu? Change it.

Menus should list the fonts and formats you use all the time. Not the ones you hardly ever use.

So you'll appreciate how easy it is in

Word to add the formats you want. And remove the ones you don't.

Want quick access to your LaserWriter fonts, paragraph borders, or some other

Font
Boston
Chicago
Geneva
Monaco
✓New York
Times
Venice
9 Point
10 Point
✓12 Point
14 Point
18 Point

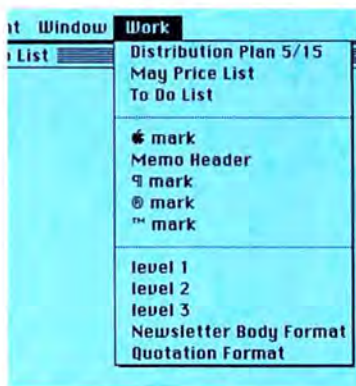
Font
Bookman
Symbol
5 Point
7 Point
9 Point
11 Point
13 Point
15 Point
17 Point
29 Point
48 Point
64 Point

Microsoft Word makes it easy to create custom menus that list as many fonts as you want to work with.

Format	Format
Show Ruler	Show Ruler ⌘R
Character...	Character... ⌘D
Paragraph...	Paragraph... ⌘M
Section...	Section...
Styles...	Styles... ⌘B
Define Styles...	Define Styles... ⌘T
✓Plain Text	Plain Text
Bold	Double Underline
Italic	Strikethru
Underline	Hidden
Outline	Superscript 2.5pt
Shadow	Side-by-Side
	Page Break Before
	Keep With Next ¶
	Keep Lines Together
	Border Box
	First Page Special
	Columns 3
	Show Hidden Text

If you find yourself frequently using certain character or paragraph formats, you can add them to Microsoft Word's Format Menu. And you can take away others that you hardly ever use.

o better writing.



Word is the only word processor for the Macintosh® that lets you create your own menu. List your most frequently used filenames, glossaries, and styles on a Work Menu where you can get to them quickly.

Add a menu. Subtract steps.

Microsoft Word lets you add a special menu that saves so much work it's called the Work Menu.

Add a Work Menu to the typical office and you may just see

some very atypical productivity increases.

That's because the Work Menu saves steps by putting your favorite formats, boilerplate text entries, and even document names a quick mouse click away.

More changes for the better.

There are lots of other ways you can make Word yours and yours alone.

Create your own custom styles—like that tricky boxed paragraph with the 13-point line spacing, tight letterspacing, and boldfaced, italicized text. And re-use it instantly for consistency in one document or across several.

You can also have your own glossary for storing text that you'd rather not retype every time you need it. Part 1(b) of the standard agreement, for instance.

And, of course, you can even customize Word's 80,000-word dictionary by adding your own unique terms.

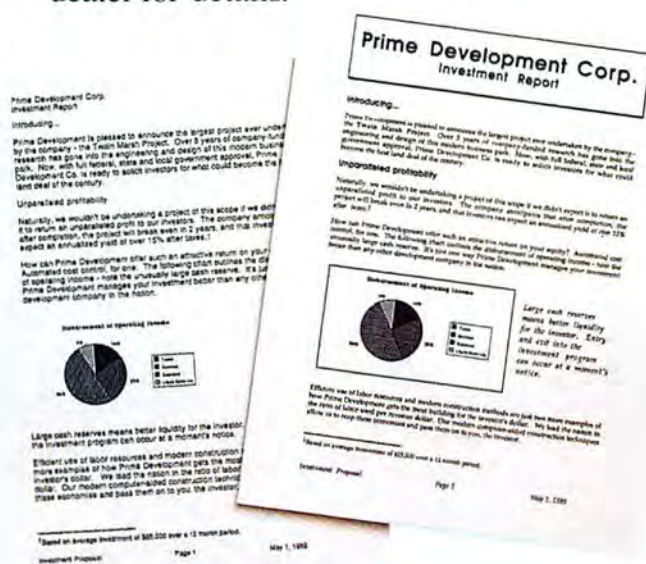
Make our Word your Word.

Ask your local Microsoft dealer to show you all of the ways Word is designed to fit you better than any other Macintosh word processor. Call (800) 541-1261, Dept. 126 for the names of dealers near you.

In no time at all you'll be sailing through customs.

Free writing help.

Get Microsoft Word 3.02 now and you'll also get a free thesaurus, free macro program, and free upgrade to the next version of Word. Ask your Microsoft dealer for details.



One of the fastest ways to produce customized output is by using Word's style sheets. They let you change from one format to another with just a click of the mouse.

Microsoft®

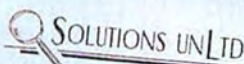
The fastest
way to
get through
customs.

For Apple® Macintosh® Systems

Microsoft Word

Document Processing Program

Version 3 now supports AppleShare[®] and the Macintosh II.



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Proposal for Building/Communications Security for Gladstone Industries

Solutions UNLTD. is a full-service security agency, specializing in leading edge surveillance and on-site security. This proposal provides for a comprehensive building and personnel security program for a total of four sites owned and operated by Gladstone Industries, Inc.

Standard Services

Solutions UNLTD. and its subsidiaries, Bugs, Inc., provide security services to 126 Fortune 500 companies worldwide. Our lists are confidential in keeping with our discreet policies; however, references will be made available to the legal department of Gladstone Industries, Inc., upon request.



Site Survey

During the week of March 8, representatives of Solutions UNLTD. performed in-depth on-site surveys of the manufacturing plants and corporate headquarters of Gladstone Industries. Detailed reports of our findings can be found in Appendices 1-4 of this document. The primary areas of importance are outlined below:

Plant 1

Microsoft

WORD PROCESSING

As the Word Turns

by Dan Shafer

Choosing the right word processor can be a chore, but knowing what your writing needs are is a big help. We'll analyze the major packages in terms of the power writers. Perhaps you'll find your word processor has yet to be written. **104**

The Write Album

by Daniel J. Rosenbaum

In this gallery of word processors, you'll see some of the finer elements of word processing in all the major packages. Judge for yourself which one suits your needs. **106**



Perfect Secrets

by Daniel J. Rosenbaum

Depending on what edition of version 1.0 you have, WordPerfect is loaded with features. Even the programmers are in the dark about some of them. **127**



Tip for Type

by Jane Berliss

QWERTY'd you learn to type? On a computer? Here's a look at four programs that'll get you up to speed — and there's no 55 wpm limit. **136**

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All Features Great and Small

by Kristi Coale and the MacUser Editors

Another Macworld Expo. The Boston Expo brought no revolutionary changes to the Mac, but everything else was new and improved (except the weather). **167**

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Now We Are 6.0

by Jane Paden

Bigger than System 5.0 (the box, not the program), System 6.0 is not necessarily the answer to all of your system woes. **184**

Enter Mathematica

by James Finn

If you're looking to do mathematics on your Mac, Mathematica is the most powerful program around like a Rolls Royce, but with more colors. But can it balance your checkbook? **199**



DTP

Between the Lines

edited by Aileen Abernathy

DTP news on PhotoMac, Springboard Publisher, Expressionist 2.0, DTP Advisor, and more, plus tips on using TeX and Word. **219**

A Retouching Story

by Carlos Domingo Martinez

Is photo retouching a gray area in your life? Is reality too real for you? Here's how to use Image Studio to really influence people. **237**

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HYPERCARD

Card Tricks

by Michael Swaine

How to keep track of your reusable software components. **259**

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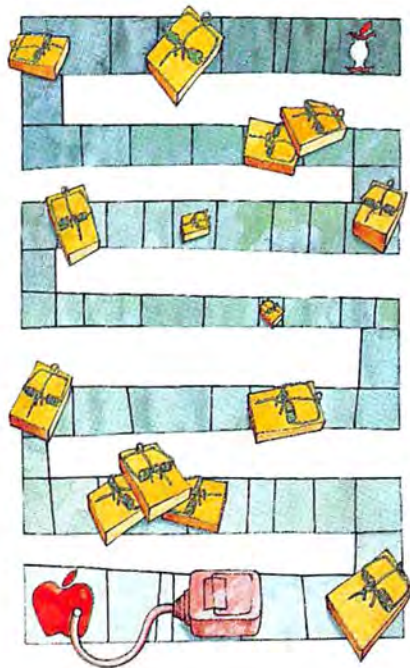
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It's their party, and I'll cry if I want to. **360**



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photo by Carter Dow

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MacUser is always looking for new and unusual products for our New on the Menu, News Line!, Quick Clicks, and Scrapbook sections, as well as for feature coverage. If you've got a product that you'd like to tell us about — whether it's new or an upgrade — send your letters and/or press releases to: Chip Carman, Technical Director, *MacUser* Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404.

TECHNICAL DIFFICULTIES AND HELP

Although we can't offer any telephone assistance, *MacUser* welcomes your technical questions. If you've got a Mac question or problem, send it to Chris Espinosa, The Help Folder, c/o *MacUser* Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404. Chris works for Apple, and if he can't give you an answer himself, he'll find someone who can. Because of the volume of mail we receive, we can't answer all of your questions so we also recommend that you take advantage of your local user groups. You can find the one nearest you by calling Apple toll-free at: (800) 538-9696, ext. 500.

TIPS, HINTS, AND PROGRAMS

We love to get tips and hints (on disk, please) from our readers. Any tips should be sent to The Tip Sheet, c/o *MacUser* Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404. We can't print every tip, but we try our best to pick the most interesting and representative ones for publication. We're also interested in hearing from any programmers who are interested in contributing to our utilities disk series or labs benchmark disk series. If interested, contact Chip Carman, Technical Director, at the same address.

WRITING FOR MACUSER

If you have an idea for an article you'd like to write, we'd like to read it. Send a query letter with samples of your writing (published if possible) and some information about your background to Louise Kohl, Executive Editor, *MacUser* Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404. No calls please. Since we rarely buy unsolicited manuscripts, save yourself some work, and don't send us a completed article without writing first. Please allow 4-6 weeks for a reply.

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Introducing Cricket Paint.



We've been asked why Cricket Software would introduce a black and white paint program when the whole world is making so much noise about color. Frankly, we feel it's obvious: There are more than 1.5 million* monochrome Macintosh® users — Apple® hasn't abandoned them and neither have we. Plus, we felt there was still a lot of room for improvement over the current best selling paint program.

So, we revved up our monochrome Macintoshes in the best Cricket Software tradition and developed the new standard: Cricket Paint.

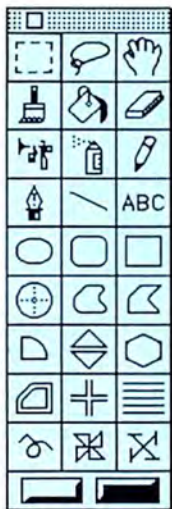
Feature-rich power

Cricket Paint is loaded with features. Powerful



features with more capabilities than you thought possible.

Our FreshPaint™ feature treats your newly painted artwork as an object, completely flexible until you deselect it to create "dry paint" bitmap images. Create, edit and output documents at resolutions from 72 dpi to 300 dpi.



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Cricket Paint is the latest in the Cricket family of graphics productivity software, Cricket Graph, Cricket Draw, Cricket Pict-O-Graph, Cricket Presents, Cricket Expression Device Drivers. Cricket Software. The leader in graphics productivity software.

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cricket
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FIVE CLICKS TO SUPE



"...Folks, in all my years in broadcasting, I've never seen any network installation like it. Just look at the control."



"He's on the table. He clicks again... This guy is taking some risks today."



"Looks like he's going in for the most difficult move yet, the Goldhaber Nose Click. And it's good!"

NOW, AN UPDATE ON THE TOPS NETWORK CHALLENGE...

Frank: You know Chet, since people have discovered how quick and easy it is to install a TOPS Network, things have gone wild in offices all over the U.S. It seems like installation techniques are getting wackier all the time!

Chet: And faster, too, Frank. It's hard to believe that with only five clicks of the mouse you can turn your Macintosh® into a LAN workstation. In a total elapsed time of less than one minute.

Frank: It's all because TOPS is the easiest to use network in the Mac and PC worlds. If you already have AppleTalk® cabling in place, all

you have to do is insert the TOPS diskette, click the mouse five times, and you're ready to start sharing information.

Chet: And with just a few more clicks, you get print spooling. It's no wonder these folks have the time to develop such incredible maneuvers!

Frank: Right you are. And that means users not only share their printers, but with TOPS they can share their hard disks and MS/DOS files too.

Chet: But you know me Frank. The thing that excites me the most is the price. TOPS/Mac costs only \$249 per node, and there's no need to purchase an expensive dedicated file server.

Frank: You bet, Chet. With the lengths people are going to, I'm sure this is going to become a major international event...

Want to try it yourself? For more

information call us at 800-445-TOPS (from outside the U.S. and Canada, call 415-769-8700). Or write to us at TOPS, 950 Marina Village Parkway, Alameda, California 94501. And get ready to become a network star.

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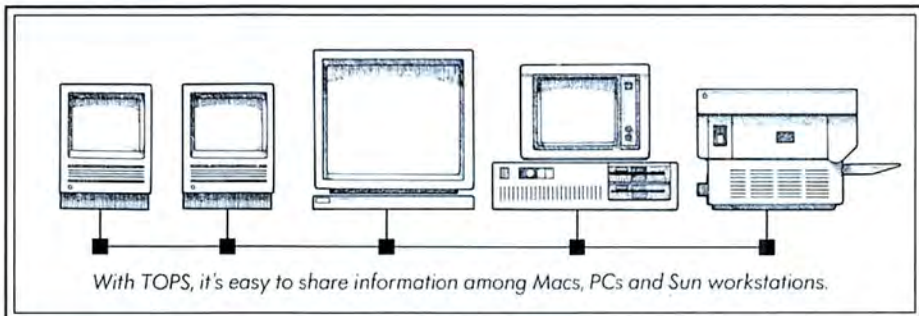
R STARDOM.



"Chet, I'd say this installation could put him into the TOPS Hall of Fame. He spins... there's the click! Can you believe this performance?"



"And he's up, on one finger. It's installed! I've never seen this before.... A new record of 59.6 seconds!"



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Mac to the Future, or Mac II: the Future

Hey, think for a second: You're a Mac user, aren't you? Do you always buy the least expensive thing? Did you test-drive a Yugo? Have you bought a bottle of Thunderbird lately? The Mac may not be the cheapest computer on the market, but it's the best buy — if in fact you seek the best. Next time your friends brag about the low cost of their latest MS-DOS clone machines, remind them that they got what they paid for.

The Mac is premium technology. It has a premium price. And it delivers premium results — from its ease of use to its design aesthetics to its philosophy of software. Apple has made the Mac the most valuable computer to use. There will always be people who recognize true value and are willing to pay a bit more for it.

The Macintosh is by far the fastest-evolving personal computer family. The introduction of a new 68030-based Macintosh really drives that point home (see this month's New on the Menu for more details about Apple's newest, most powerful computer). Just four years ago, the Mac was introduced amid hoopla, hype, and promise. It was ahead of its time, its paltry 128K RAM offering more promise than performance. This in turn led to a backlash among many business people, who felt that Apple (and Steve Jobs) was trying to sell them something far from suited to their needs. This promise without power hurt the Mac in its pioneer years ('84 and '85), casting a cloud of doubt over the technology.

The Mac had its share of doom-and-gloom doubters then, but it simultaneously spawned a loyal band of eloquent champions. Though the early 128K and 512K Macs were not the be-all and end-all business solutions Jobs promised, the Mac represented a next-



Apple's technological leadership in personal computing during the past ten years has been so pervasive that even IBM now regularly follows Apple's lead.

generation, state-of-the-art technology. And in return for this promise of innovation, true believers were willing to overlook the limitations of early models. Despite its problems, the Mac still towered over its competition, breaking new ground in vitally important areas, including user interface,

hardware design, system software, and virtual-device interface.

Mac users have weathered more than one storm. But those clouds of doubt have clearly lifted, and the brilliance of the Mac's latest hardware and software technology now shines brightly over all computerdom. A recent survey (by Stewart Alsop) of top executives from large personal computer software companies (a group traditionally associated with MS-DOS) finds that the Mac II is quickly becoming the computer of choice among industry CEOs.

FOLLOW THE LEADERSHIP

At *MacUser* we are often critical of Apple, but we've never lost sight of how much credit the company deserves — for risks it has taken that have paid off handsomely. Although the Macintosh (and its predecessor the Lisa) was unarguably inspired by research done at Xerox PARC and elsewhere, Apple deserves recognition for being the first to bring a graphic user interface and virtual-device technology to market in a personal computer. Apple's technological leadership in personal computing during the past ten years has been so pervasive that even IBM now regularly follows Apple's lead. First IBM copied the Apple II when it created the original IBM PC, and now IBM is copying the Mac with its PS/2, OS/2, and Presentation Manager products.

Apple's technological leadership can also be seen in its rapid improving and updating of the Macintosh family. Apple has already introduced an astonishing *eight* models of Macintosh in the past four years (Mac 128K, Mac XL, Mac 512K, Mac 512KE, Mac Plus, Mac SE, Mac II, and the new '030 Mac) with major breakthroughs (such as the Mac Plus and the Mac II) coming every year or two. We can't tell

you exactly when, but soon we'll be reporting on Macintosh tower and laptop machines. IBM, on the other hand, has taken much longer to introduce its second-generation PS/2 models (such as they are).

In the system software arena as well, Apple has engineered and introduced a dozen versions of its operating system. IBM's equivalent, Presentation Manager, is very much vaporware (still under development) with no applications yet available. IBM may tout its OS/2 Presentation Manager as a serious contender to the Mac, but consider the facts:

The Mac is here now, with several million users and several thousand software applications. The Presentation Manager has no users, has no applications, and remains several years away from the mere *potential* of widespread acceptance.

The '030 Mac is a good example of how Apple remains a moving target

for IBM; although IBM now tries to play catch-up with the Mac, Apple's frequent updates to its CPU families will help it to retain its leadership role in personal computing for some time to come.

INSIDE THE 68030-BASED MACINTOSH

Apple's 68030 Mac configuration (release name was not available at press time) is a new addition to the Mac II line and represents the most powerful computer Apple has offered yet. The main differences between the original Mac II and the new machine are the following: 1) replacement of the Motorola 68020 CPU chip with a 68030 CPU; 2) replacement of the Motorola 68881 math coprocessor chip with a 68882 chip; and 3) elimination of an additional 68851 PMMU (memory management) chip, since the functions of that chip are included in the Motorola 68030. Other than these

changes, not much is different from a normal Mac II. And regrettably, for those of us who like to build up our own systems, the Mac '030 comes in a standard configuration with 4 megabytes of RAM, as well as an internal 80-megabyte hard-disk drive. This pushes the price right up into the stratosphere.

But it does offer the perfect A/UX (Apple/UNIX) workstation, doesn't it?

Is the Mac '030 a whole lot faster than the regular Mac II? Not really, although there is some improvement. The 68030 CPU in the unit actually runs at exactly the same speed (about 16 megahertz) as the 68020 in the regular Mac II. However, Apple claims CPU performance is improved 10 percent to 15 percent by special on-chip caches for data and instructions. The new Mac configuration also gets a special boost from the 68882 math coprocessor, which is nearly twice as fast as

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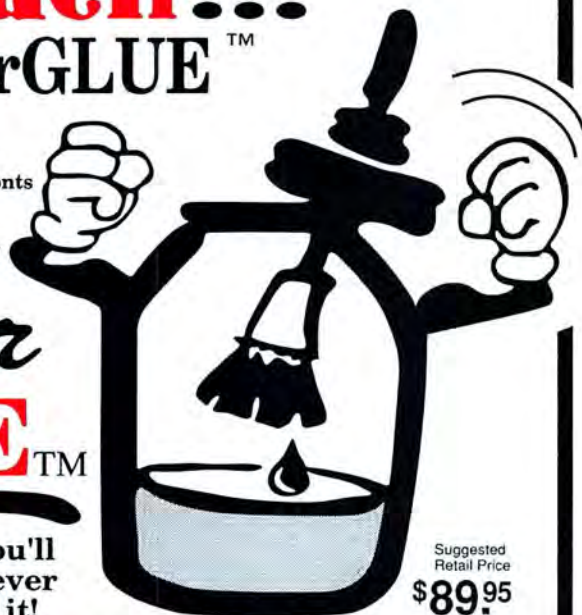
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the 68881 math chip found in the standard Mac II. This is nice for number-crunching types and Mathematica fans. The 68851 PMMU chip that you need to buy separately to run A/UX on a Mac II is not required in this configuration, which means that the Mac '030 is ready to run A/UX and other multitasking operating systems. The emergence of the 68030 in the Mac product line certainly hints that much more powerful versions of MultiFinder must be in the works.

THE DRIVE FOR SUCCESS

The Macintosh '030 also comes standard with a new 3.5-inch disk drive that reads and writes a wide array of disk formats, including Macintosh, IBM, and Apple II formats, ranging from 400K to 1.4 megabytes per disk. The two main benefits of this new drive are the nearly doubled storage capacity (from 800K to 1,400K) and the provocative ability to use disks

that were created on IBM PCs, PS/2s, and compatibles — using either 720K or 1.4-megabyte 3.5-inch disks (the standard disks for IBM's PS/2 family). The new drive certainly makes connectivity with MS-DOS and OS/2 much easier; just pop your IBM disk into the Mac, swap some files, and you're on your way.

We assume Apple will make this the standard drive in all Mac models soon. Larger 1.4-megabyte storage capacity will benefit all Mac users, as Mac files (both applications and data) continue to get larger and larger. Lately, fitting a fully configured System folder on an 800K disk has been a challenge, if not downright impossible. Also, software developers will be pleased if 1.4-megabyte Mac drives become standard soon; this will allow them to ship more software on fewer disks.

FAMILY PORTRAIT

Apple has now created a whole fam-

ily of Macintosh computers. Building the Mac II into a full product line is a critical next move for the company. Apple itself was surprised by the great success of its Mac II; what was first thought of as a niche product drove sales far above projections (and inventories). The Mac II is now the heir apparent to the mainstream Macintosh product line. Introducing a Mac II family member that makes use of the state-of-the-art 68030 CPU helps foster a perception that Apple is targeting Sun and NeXT as serious competitors in the workstation market. And if preliminary results are any indication, Apple is making a good run at this goal. Although not all Mac IIs are being used as traditional engineering workstations, the installed base of Mac IIs now exceeds the installed base of Sun workstations. Not bad for its first year in the marketplace.

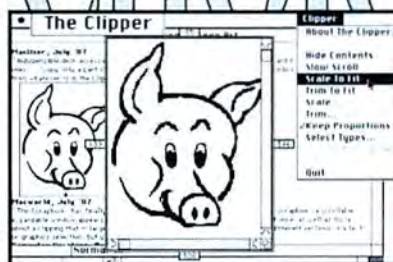
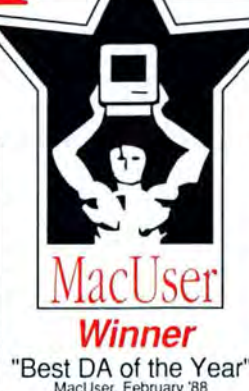
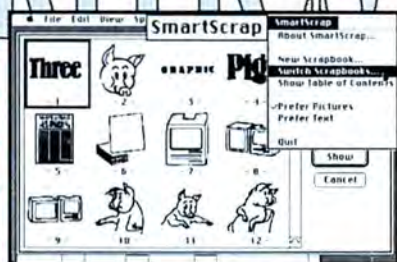
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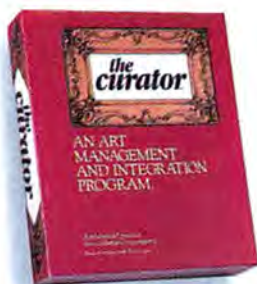
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2861	Basic Interpreter 3.0	62.
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2863	Chart 1.02	79.
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2885	Microsoft Write 1.0	81.
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2866	File 1.05	119.
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2862	Basic Compiler 1.0	125.
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2869	Fortran 2.2	189.
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2884	Works 1.1	189.
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2875	Microsoft Mail (1-4 users)	195.
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2872	Microsoft Mail (5-10 users)	325.
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2873	Microsoft Mail (11-20 users)	499.
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2874	Microsoft Mail (21-32 users)	650.
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2865	Excel 1.5	249.
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2882	Word 3.02	249.
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2878	PowerPoint 2.0	249.
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Migent ... NCP

2784	In House Accountant 1.05	119.
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2768	Orchestra of Fonts Vol. 4	special 19.
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2771	Mac the Ripper Vol. 3	27.
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2769	Peoples, Places & Things Vol. 5	27.
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Mindscape ... NCP

2748	The Perfect Score: SAT 1.0 (CP)	46.
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2742	ComicWorks 1.0	47.
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2746	GraphicWorks 1.1	84.
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PowerPoint—Compose complete boardroom-quality presentations. Design and arrange 35mm slides, flipcharts, overhead transparencies, etc., all within one program. \$249.

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2781	Forecast 2.0	\$40.
2780	Dollars & Sense 4.0	81.
2779	Business Sense 1.0	279.
Nantucket ... NCP		
2971	McMax 1987.25	175.
Nolo Press ... NCP		
4228	For the Record	29.
2981	WillMaker 3.0	35.
North Edge Software ... NCP		
2986	Timeslips III 1.05	119.
Odesta ... NCP		
4211	DataDesk	289.
3014	GeoQuery 1.0	295.
3013	Double Helix II 2.0	339.
Olduvai Software ... NCP		
3029	DA-Switcher	25.



Chang Labs ... 5 years
C.A.T.—Powerful relational database for managing Contacts, Activities, and Time. Use to organize events, meetings, day-to-day projects, expense reports, personnel records, etc. **\$239.**

3033	Post ART	35.
3031	Icon-It! 1.01	39.
3030	FontShare 1.01	149.
3035	Read-It! TS 1.06	79.
3034	Read-It! 1.06G	199.
OWL International ... NCP		
3082	Guide 2.0	119.
Peripherals Computers & Supplies ... NCP		
3129	KaleidaGraph 1.10	125.
3130	VersaTerm 3.20	69.
3131	VersaTerm-PRO 2.20	199.
Personal Computer Peripherals ... NCP		
3175	HFS Backup 2.02	28.
Postcraft International ... NCP		
3157	Laser FX 1.6	115.

4058	Laser FX Pack I	\$29.
4059	Laser FX Pack II	29.
4060	Laser FX Pack III	29.
4061	Laser FX Pack IV	29.
4062	Laser FX Pack V	29.
4063	Laser FX Pack VI	29.
ProVUE Development ... NCP		
3191	OverVUE 2.1E	149.
Quark ... NCP		
3230	Quark XPress 2.0	549.
Rubicon Publishing ... CP		
3272	Dinner At Eight-Encore Edition 1.03	51.
Satori ... NCP		
3320	BulkMailer 3.2	79.
3321	BulkMailer Plus 3.22	195.
3322	Legal Billing 2.0	369.
3323	Legal Billing II 2.53	539.
3978	Components GL 1.0	389.
3324	Project Billing 1.53	409.
Sensible Software ... NCP		
3375	Sensible Grammar 1.1C	55.
Silicon Beach Software ... NCP		
3504	Silicon Press 1.1	41.
3508	World Builder 1.0	41.
3506	SuperPaint 1.1	79.
3507	Super3D 1.0	159.
3980	Digital Darkroom 1.0	159.
Simon & Schuster ... NCP		
4230	The Fully Powered Mac Book	24.
3305	Typing Tutor IV 1.2	35.
SmethersBarnes ... NCP		
1478	Prototyper 1.0	72.
SoftStyle ... NCP		
3282	Printworks (Dot Matrix) 3.23	43.
3281	Printworks (Daisywheel) 3.0	56.
3283	Printworks (HP laser) 3.0	85.
SoftView ... NCP		
3471	MacInUse 2.0	42.
3473	TaxView Planner 2.0 (1987-1991)	49.
3981	FormSet Business Forms Edition 1.0	59.
Software Discoveries ... NCP		
3374	Merge Write 1.0	35.
3373	Record Holder Plus 3.0	45.
Software Ventures ... NCP		
3454	Microphone 1.1	119.
3455	Microphone II 2.0	225.
Solutions, Inc. ... NCP		
3448	SmartScrap & The Clipper 1.02	35.
3449	SuperGlue 1.03	52.
3446	The Curator 1.04	79.
Springboard ... CP		
3528	Art-a-la-Mac Vol. 1	23.
3530	Certificate Maker 1.0	24.
3532	Certificate Maker Library Vol. 1	18.
3531	Early Games	28.
SuperMac Software ... NCP		
3383	SuperSpool 5.0	54.

3382	SuperLaserSpool 2.0	\$82.
3378	Multi-User SuperLaserSpool 2.0	199.
3377	Diskfit 1.4	54.
3379	Network Diskfit 1.4	199.
3381	Sentinel 2.0	155.
3380	PixelPaint 1.1	209.
4086	Acknowledge	349.
Survivor Software ... NCP		
3289	MacMoney 3.01	62.
Symantec ... NCP		
3982	MacSQZ! 1.0	49.
3983	SUM 1.0	59.
3422	More 1.1C	175.
3423	HFS Navigator 1.0	34.
3419	Laserspeed 1.6	55.
3421	Lightspeed Pascal 1.11A	65.
3420	Lightspeed C 3.0	95.
3415	CAPP's for Lightspeed C 1.0	49.
3416	CAPP's for Lightspeed Pascal 1.0	49.
3417	InBox Starter Kit 2.2	199.
3418	InBox Connection Mac 2.2	75.
Symmetry ... NCP		
3317	Acta 2.01	36.
3318	HyperDA 2.01	38.
4160	PictureBase-WetPaint	99.
3G Graphics ... NCP		
3942	Images with Impact	59.
Telegraphics ... NCP		
3630	HyperTutor 1.0.1	29.
Think Educational ... CP		
3615	MacEdge II 1.0	28.
3616	Mind Over Mac 1.4	28.
T/Maker ... NCP		
3640	ClickArt Personal Graphics	28.



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3632	ClickArt Business Images	28.
3636	ClickArt Holidays	28.
3637	ClickArt Letters Vol. 1	28.
3638	ClickArt Letters Vol. 2	28.
3634	ClickArt Effects	28.
3633	Christian Images	35.
3631	Bombay Laser font	45.
3641	Plymouth Laser font	45.
3643	Seville Laser font	45.
3635	EPS Illustrations	75.
3639	WriteNow 2.0	109.
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3548	Source Code Library II	42.
3549	TML Pascal II 2.50	79.
TOPS ... NCP		
4189	TOPS Teleconnector (DB-9)	39.
4188	TOPS Teleconnector (DIN-8)	39.
3726	TOPS for DOS 2.0	119.
3723	TOPS Mac 2.0	119.
3724	NetPrint 2.0	119.
3725	TOPS Repeater	132.
3720	TOPS Flashcard (90 days)	169.
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3729	LAP-LINK Mac 1.2	85.
True BASIC ... NCP		
LANGUAGE & TOOLKITS		
3587	True BASIC 2.0	59.
3570	Advanced String	49.
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3584	Sorting & Searching	49.
3588	3D Graphics	49.
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EDUCATIONAL SOFTWARE		
3571	Algebra	35.
3573	Arithmetic	35.
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3577	Discrete Math	35.
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3580	Pre-Calculus	35.
3581	Probability	35.
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3784	myDiskLabeler w/LaserWriter option	34.
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3800	WordPerfect Mac 1.0	185.
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3788	Findswell 2.0	36.
3792	Spellswell 2.0F	45.
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3985	ZBasic 4.0	59.
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4099	Shufflepuck Cafe (air hockey)	22.
4111	Moebius (color adventure & arcade)	24.
4229	Where in World Carmen San Diego?	25.
1429	Ultima III	24.
1421	Ancient Art of War	27.
1428	Toyshop	30.
Bullseye ... CP		
1544	Ferrari Grand Prix	32.
4074	P51 Mustang Flight Simulator	32.
Electronic Arts ... CP		
1844	Dr. J vs. Larry Bird	15.
1848	Patton vs Rommel	15.
1847	Ogre	20.
1851	Scrabble	26.
1850	Reach for the Stars	26.
1842	Chessmaster 2000	28.
4064	Chuck Yeager Flight Simulator	32.
Epyx ... CP		
2039	Winter Games	15.



Datadesk ... 2 years

Mac-101 ADB Keyboard—Everyone needs more keys for macros, cursor control and menu shortcuts. This keyboard gives you plenty, plus the better feel of resist and release keys. \$139.

2037	Sub Battle Simulator	24.
Greene, Inc. ... CP		
2268	Crystal Quest	26.
4119	Crystal Quest w/Critter Editor	42.
Infinity Software ... CP		
2518	GO	27.
2519	Grand Slam Tennis	27.
MacroMind ... NCP		
2772	Mazewars+	31.
MEDIAGENIC ... CP		
1339	Shanghai (Activation)	24.
Microsoft ... CP		
2868	Flight Simulator	32.
Micro Sports ... NCP		
2787	MSFL Pro League Football	32.
Miles Computing ... CP		
2764	Down Hill Racer	24.
2767	Harrier Strike Mission II	27.
2765	Fool's Errand	27.
Mindscape ... CP		
4083	Balance of Power 1990	30.
3987	Colony	30.
2743	Crossword Magic	30.
2745	Deja Vu	30.
2749	Shadowgate	30.
2750	Trust & Betrayal: Legacy of Siboot	30.
2751	Uninvited	30.
PBI Software ... CP		
3110	Strategic Conquest Plus	35.
PCAI ... NCP		
4212	MacCourses	32.
3144	MacGolf	35.
Primera Software ... CP		
3169	Smash Hit Racquetball II	22.
Psion ... CP		
3132	Psion Chess	31.
Sierra On-Line ... CP		
4161	Mother Goose	19.
3397	Leisure Suit Larry	23.
3394	King's Quest I	29.
3395	King's Quest II	29.
3396	King's Quest III	29.
3399	Space Quest	29.
3400	Space Quest II	29.
3398	Police Quest	29.
Silicon Beach Software ... NCP		
3500	Airborne! (CP)	20.
3505	Enchanted Scepters (CP)	21.



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- 3036 Grappler 79.
4076 Grappler LQ 92.

Personal Computer

Peripherals ... 2 years

- 3177 HD-WSI (Apple HD-20 to SCSI) ... 269.
3181 MacBottom HD 21 SCSI 659.
3180 MacBottom HD 21 w/Modem 779.
3185 MacBottom HD 32 SCSI 699.
3184 MacBottom HD 32 w/Modem 829.
3189 MacBottom HD 45 SCSI 859.
3188 MacBottom HD 45 w/Modem 979.
3190 MacBottom HD 70 SCSI 999.
3176 MacBottom IHD-144 Meg (1 yr.) ... 1495.

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3089 Mac Communications Pack 249.

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- 3453 JX-450 Color Scanner call
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- 3444 NetSerial X232 309.
3442 NetModem V1200 359.
3443 NetModem V2400 479.

SoftStyle ... 90 days

- 3277 MacEnhancer 159.

Summagraphics ... 90 days

- 3371 MacTablet 12" x 12" 379.

Thunderware ... 90 days

- 3648 ThunderScan 4.0 with PowerPort . 199.
3645 Mac II Power Accessory 42.

DISKS

- 2214 Fuji 3 1/2" DS/DD Disks 18.
3297 Sony 3 1/2" DS/DD Disks 19.
3772 Verbatim 3 1/2" DS/DD Disks 19.
2792 MAXELL 3 1/2" DS/DD Disks 20.

INFORMATION SERVICES

CompuServe

- 1676 CompuServe Information Service ... 24.
1671 Grolier's Online Encyclopedia. 32.



Microsoft ... NCP

Excel—The best spreadsheet for the Mac just got better. New features include customized menus & dialog boxes, MultiFinder compatibility, and full color support for the Mac II \$249.

- 1673 CompuServe Navigator 2.02 \$45.
1674 Standard Service/Navigator Bundle 59.
Dow Jones
1789 Dow Jones Membership Kit 24.
1785 Desktop Express 95.
1786 Market Manager Plus 189.

ACCESSORIES

Bantam Books

- 1403 Complete HyperCard Handbook . . 24.

Computer Coverup

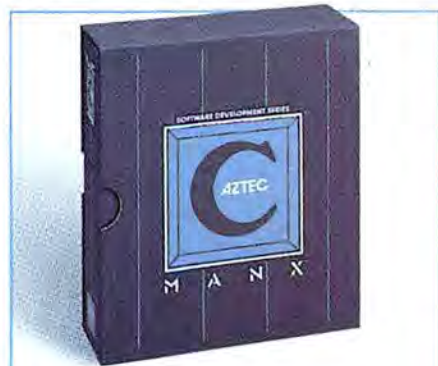
- 1723 ImageWriter II Cover 8.
1722 ImageWriter LQ Cover 8.
1720 Mac Plus Cover Set 10.
1724 Mac SE Cover Set 10.
1725 Mac SE Ext. Keyboard Cover Set . 10.

Computer Show Network

- 4113 VIDEO: On Becoming a Desktop
Publisher w/Free Product Demo Video
(VHS ONLY) 39.

Goldstein & Blair

- 2267 The Macintosh Bible 16.



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Aztec C—Comes with both Aztec shell and the MPW shell so that you can decide what environment is best for the way you program. \$75.

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- 2378 MacLuggage HDware 54.
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2379 MacLuggage Imageware II 49.
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- 2532 Teakwood Roll-top Case (45 disks) . 14.
2531 Teakwood Roll-top Case (90 disks) . 20.
2533 Teakwood Roll-top Case (135 disks) 28.

Microsoft Press

- 4057 Microsoft Works on the Apple Mac 15.
4056 Working with Word 17.
2864 Excel in Business 18.

Moustrak

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- 2694 Moustrak Pad (standard 7"x9") 8.
2692 Moustrak Pad (large 9"x11") 9.
2693 Moustrak Pad L/F (9"x11") 10.
Moustrak Designer Series (Features
selected photos from the book, "A Day
in the Life of America.") each 12.

Ribbons

- 3255 ImageWriter II Black Ribbon 4.
3261 ImageWriter II 4-color Ribbon 9.
3270 ImageWriter II Rainbow Six Pack. . . 20.



Dove Computer ... 90 days

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- 3260 ImageWriter LQ Black Ribbon. 17.
4011 ImageWriter LQ 4-color Ribbon ... 20.

Sopris Softworks

- 4163 The Gallery (folding disk holder) . . 20.
4017 ImageWriter II Cover 11.
4016 Mac Plus Cover. 15.
4019 Mac SE & Ext. Keyboard Cover . . 15.
4018 LaserWriter II Cover. 17.
4012 High Trek ImageWriter II carry case. 49.
4013 High Trek Mac Plus carry case 59.
4014 High Trek Mac SE & ext. kybd. case 69.

Targus

- 3618 ImageWriter II Carry Case. 49.
3617 Mac Plus/SE Carry Case. 59.
4015 Mac SE & Ext. Kybd. Carry Case . . 69.

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3501	Apache Strike.	27.
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3303	Star Trek—Kobayashi Alternative.	24.
3304	Promethian Prophecy.	24.
Sir-Tech ... CP		
3347	Mac Wizardry.	35.
Softstream, Inc. ... NCP		
4071	Mac•Man (w/adaptor).	24.
4072	The Solitaire DA.	24.
4073	Colour Billiards.	39.
4078	3 Game Pak.	75.
SPHERE, Inc. ... NCP		
4175	Solitaire Royale (for Mac SE).	20.
4001	Solitaire Royale (for Mac II).	20.
3464	Tetris.	26.
3462	PT-109.	26.
3460	GATO.	26.
3461	Orbitor.	26.
3459	Falcon.	26.
XOR ... NCP		
3816	Pro Challenge.	30.
3815	NFL Challenge.	64.

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Manufacturer's minimum limited warranty period is listed after each company name. Some products in their line may have longer warranty periods.

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1188	ProPoint ADB.	99.
Asher Engineering ... lifetime		
1212	Turbo Trackball ADB.	69.
AST Research ... 6 months		
1229	Mac 286.	call
1226	AST TurboScan (sheetfeed).	call
1225	AST TurboScan (flatbed).	call
1227	AST TurboLaser P/S.	call
Curtis Manufacturing ... lifetime		
SURGE SUPPRESSORS		
1715	Safestrip.	21.
1689	Diamond.	32.
1694	Emerald.	36.
1709	Sapphire.	47.
1707	Ruby.	55.



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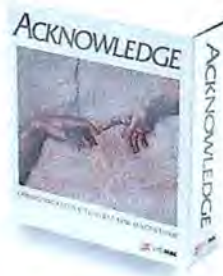
3988	CE 105ADB Keyboard.	\$135.
3989	800k Disk Drive.	175.
3990	The Wedge XL 30+ SCSI Drive.	629.
3991	The Wedge XL 45+ SCSI Drive.	829.
Datadesk ... 2 years		
1819	MAC-101 Keyboard (beige).	139.
1820	MAC-101 Keyboard (platinum).	139.
1821	MAC-101 Keyboard (ADB).	139.
1818	HyperDialer.	26.
Dove Computer ... 90 days		
1801	SCSI Interface/Port.	85.
1807	MacSnap 524E.	289.
1809	MacSnap 524S.	379.
1811	MacSnap 548E.	549.
1812	MacSnap 548S.	599.
1800	MacSnap 2SE.	439.
1797	MacSnap Plus 2.	439.
MAC SE 68020 ACCELERATOR BOARDS		
1793	Model MSE1.	585.
1794	Model MSE2 (1 Meg).	979.
1795	Model MSE3 (math chip).	779.
1796	Model MSE4 (1 Meg/math chip).	1159.



Microlytics ... NCP

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4231	Model MSE4x4 (4 Meg/math chip).	2395.
1803	1024 Option.	439.
Ergotron ... 1 year		
2004	Mouse Cleaner 360°.	15.
3992	The Muzzle (platinum).	62.
1998	MacTilt (platinum).	68.
2000	MacTilt SE.	68.
1999	MacTilt Large.	85.
3993	Mac II Workstation Model A.	525.
3994	Mac II Workstation Model B.	535.
Farallon Computing ... 1 year		
2202	PhoneNET-AppleTalk 120.	9.
2203	PhoneNET PLUS (DIN-8).	35.
2204	PhoneNET PLUS (DB-9).	35.
2206	PhoneNET StarController.	1319.
2205	PhoneNET Punch Down Block.	69.
2201	TrafficWatch.	159.
FWB Software ... 1 year		
3996	PocketHammer40.	call
3997	PocketHammer80.	call
3998	Hammer91.	2195.
3999	Hammer155.	2995.
4000	Hammer300.	4295.
Hayes ... 2 years		
2300	Smartcom II 3.0B.	88.



SuperMac Technologies ... NCP

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2304	Smartmodem 1200.	299.
2307	Smartmodem 2400.	449.
Kensington ... 1 year		
2563	Mouse Pocket ADB.	8.
2577	Mouseway.	8.
2558	ImageWriter II Cover.	9.
2569	Mac Plus or SE Cover.	9.
4126	LaserWriter II Cover.	17.
2562	Mouse Cleaning Kit.	17.
2550	Disk Drive Cleaning Kit.	20.
2580	Mac II Stand.	20.
2545	Universal Copy Stand.	22.
2573	Maccessories Tilt/Swivel.	22.
2578	Extra Long ADB Keyboard Cable.	25.
2556	Maccessories Anti-glare Filter.	33.
2579	Mac II Monitor Cable Extension.	33.
2559	Apple Security System.	34.
2568	Maccessories SuperBase.	34.
2585	Printer Muffler 80.	43.
2586	Printer Muffler 80 Stand.	24.
2583	Printer Muffler 132.	58.
2584	Printer Muffler 132 Stand.	24.
4070	System Saver SE.	52.
2560	MasterPiece 400.	64.
2561	MasterPiece Mac II.	105.
2546	Maccessories A-B Box.	64.
2566	System Saver Mac (platinum).	64.
2547	New Turbo Mouse ADB.	109.
Koala Technologies ... 90 days		
2593	MacVision 1.4.	169.
Kraft Systems ... 1 year		
2600	3-Button QuickStick.	39.
4082	3-Button QuickStick ADB.	51.
Kurta ... lifetime		
2604	IS ADB Tablet.	259.
2605	Cordless 4 Button Cursor.	99.
Migent ... 1 year		
2785	Pocket Modem.	115.
MSC Technologies ... lifetime		
2808	A+ Mouse.	65.
2809	A+ Mouse ADB.	85.
Nutmeg Systems ... 90 days		
2992	15" Monitor for Mac Plus.	1295.
2994	15" Monitor for Mac SE.	1295.
2993	15" Monitor for Mac II.	1395.
4002	19" Monitor for Mac Plus.	1395.
4003	19" Monitor for Mac SE.	1395.
4004	19" Monitor for Mac II.	1495.

logical that the company will soon announce a downscale Mac II as well — to fill the gap in the product line between the Mac SE and the Mac II. If and when that happens (and I think it will be soon), it will signal the beginning of a golden era for the Mac II. We'll likely see the Mac II family become the most widely used Macintosh and, by extension, the premier personal computer system. The Mac II provides a powerful computing platform that allows productivity and creativity of a sophistication and quality not possible on any previous personal computer.

THE PAIN OF UPGRADE

Mac II owners (who generally have been an amazingly happy lot) now have something to gripe about, of course. It looks as if the cost of upgrading a Mac II to the '030 configuration will be more than \$1,000 (ouch!), and if you wanted or needed the power of a

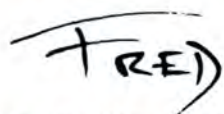
Mac II in the first place, there's a good chance that you'll feel bad unless you run right out and upgrade immediately. Is it worth it? Well, it's too early to tell for sure, but I think it's worth going for — and my board's on order to prove it. It's true that the overall speed increase is not that great, but for some things (like math processing) it will make a difference. And I'm one of those folks who thinks every little bit of speed helps.

The upgrade question brings up a lot of issues. I've always upgraded, always bitched about the price, and yet never regretted it in the long run. The fact is that as the earliest of adopters, I'm one of a select group of people who paid \$15,000 for a Mac Plus (it started its life as a Lisa, was then upgraded to a Lisa 2, Mac XL, and, finally, Mac Plus).

That was, admittedly, a costly way to go. But I've always felt that it is well worth a sacrifice to remain perched on

the cutting edge, and I know a lot of Mac users feel exactly the same way. Mac users are a different breed: They're risk-takers who don't mind paying for quality. For the most part, IBM PC and MS-DOS users are using that technology because they *have* to. It's approved by the company, it's what is there, it's what's cheap, it's what they buy. Mac users on the other hand are using Macintosh technology because they *want* to. And they want to quite a bit, since they are willing to pay a good deal more for Macs. Mac users understand that the price of a computing solution is not directly related to the cost of a computer itself.

And that's exactly what transforms us from users into champions. ☐



FREDERIC E. DAVIS/EDITOR-IN-CHIEF

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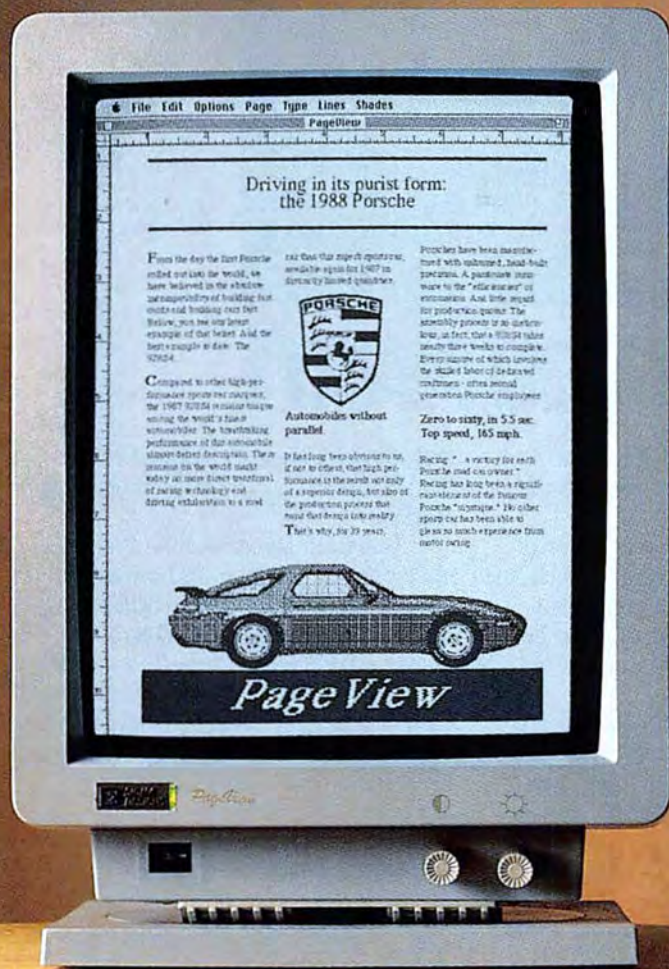
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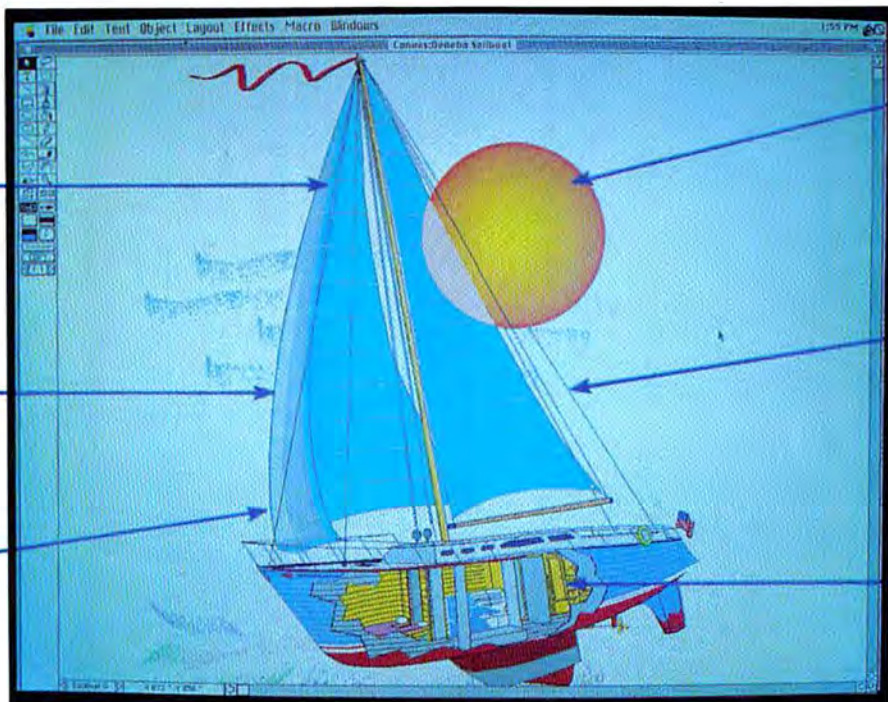
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Letters

Articles We'd Like To See Dept.: A Mr. Mark Hardy of Glen Ellyn, IL, writes: "Everytime I pick up MacUser (or, yes, one of its less savory competitors), I come across a picture of a Mac that's been thrown out of a window or dipped in chocolate or coated with black paint, etcetera, etcetera. There must be a good story behind each and every one of these Macs that have died for Art's sake. Maybe you could do a photo layout with Gallagher taking his proverbial gavel to one of the condemned." We're always happy to hear from our readers on issues of interest to the Mac community. Write to Letters to the Editor, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. All letters become the property of MacUser, and we reserve the right to edit letters we print.

CLUTTER CUTTER MUTTER

I don't know which is worse: the potential threat of a virus or the actual junkyard that now comes up on my startup screen. In several articles, you have indicated the violated feelings owners have upon encountering a virus. Well, I now get that feeling each time I boot our system!

Upon startup, I now see icons for Pyro!, Suitcase, and QuicKeys, then a box for TOPS, and finally a complete screen for DaynaFile. Meanwhile, the instructional startup screen I created for our users is hidden.

Some of these programs let you remove the offending graphics, but most require ResEdit work — something we don't use casually where I work. I hope that future upgrades will make these startup messages optional, giving users the option of turning them on.

DAVID LAZAR
OLYMPIA, WA

STEEP UPGRADE

What's the difference between a fix and an upgrade? SuperSpool 4.0



doesn't work with Microsoft Word. When I discovered this in February, I called them and was told that a fix would be mailed in the spring. When July came (and almost went) and nothing happened, I wrote to them. In return, I was offered an "update" for \$20. I think that's a bit much, and SuperMac has lost a customer.

DONALD MINTZ
RINGWOOD, NJ

It takes two (or more) to be incompatible. In the interim between the January announcement and the June release of the upgrade, Apple was busy releasing a new System that forced SuperMac to undergo new testing. SuperMac also has a 30-day return policy for users who discover such incompatibilities after the fact. And, according to SuperMac, the \$20 upgrade fee merely recoups the handling costs. SuperMac, like many software publishers, waives the fee for registered users who purchase soft-

ware during the period after an upgrade is announced but before it ships.
— JZ

LA BOMBA

In your August '88 issue, there was a letter about a bomb icon that took over a copy of MacDraw. I have found a similar version. If you locate what the problem is, please let me know. If the problem is in the programs, please contact Claris so they can clear it up.

SCOTT E. CROWELL
AMES, IA

Actually, the problem lies with the user community, not the software. The bomb icon is from an ancient beta version of MacPaint (back from when it was still Atkinson's baby), before 4.6 versions of MacWrite and other programs. All the icon represents (in this case) is that it's a beta copy that was created on May 28th, 1985 (thus the 5/28 you see in the icon itself) and that it, as all betas do, represents a potential bomb. Claris probably didn't hear of it simply because it was an Apple practice before the formation of Claris.

Any program with this icon is probably pirated, and consequently a risk; anyone who has it should just trash the program before it causes problems. — JH

WHAT FLAWED READER RABBIT?

After reading the spectacular review Sharon Zardetto Aker gave Reader Rabbit in the June '88 issue, I practically had no choice but to go out and get a copy for my Mac-hungry four-year-old. And, as the review suggested, it's a fabulous educational program.

However, I discovered one little flaw that makes it a bit less desirable than the five-mice ("if I could... six mice") rating. Whenever I load the disk, Reader Rabbit comes on, but the voice is turned off. I have to go to the

Letters

Options menu to turn the voice on, a rather obtrusive task for my boy who is just learning to read. And the voice is automatically turned off whenever the disk is ejected. The same goes for the volume control, which is always set on "medium." So my son has a lot to remember every time he wants to play Reader Rabbit in its full glory.

Perhaps the voices of some of those five (or more) mice would, when turned on, suggest eliminating a few from their ranks?

ROBERT P. RIVERA, M.D.
ROCHESTER, MN

Nyeh — what's up, doc? There's bugs in them thar bunnies. (Well, not bugs.) The Learning Company, publisher of Reader Rabbit, says a future hard-disk-installable version may be able to save user preferences. — JZ

ESPRIT DE CORE

In the September '88 *MacUser*, Kristi Coale mentioned Core Wars, the computer-virus-simulation game first outlined in A.K. Dewdney's May '84 *Scientific American* column. Core Wars is now supported by a growing user group and newsletter that sponsors several international tournaments throughout the year. Interested readers may write to me at 10 Tumbleweed, Irvine, CA 92715.

MICHAEL DE LA MAZA
SECRETARY,
INTERNATIONAL CORE WARS SOCIETY

INCITE VS. INSIGHT

Oh, come on Bobker, give me a break. Your holier-than-thou attitude regarding stories done by the general print and broadcast media about computer viruses (in your August '88 column) was hard to take. Apparently, you would have your readers believe that when anyone other than yourself (save maybe for a few select cronies) sets out to do a story on this scary topic, they do so with the express intent of "selling papers" and creating a panic, giving no thought at all to the consequences. Yet when you do the same, it is only to deliver a few wise, compassionate, and well-timed words.

DIANE PAYNE
MARIETTA, GA

The column was making a distinction between news reports aimed at a general audience in a format unable to provide enough detail for preventive action to be taken and usable information aimed at the computer community. Read on for another view. — JZ

We at ABC News searched our souls, as Steven Bobker did in his August '88 column, over how to report on computer viruses. Would our story give credence to some new form of terrorist, or would it help our viewers by telling them of something potentially worrisome in society?

We thought the latter. Many computer owners, of course, wouldn't have gleaned much news from our report. But our audience includes many people who don't consider themselves computer-literate, even though they are affected by new technology.

I suspect we did right. I got a lot of phone calls after our piece aired. Many said "Thank you for telling me something new." There was even a software maker who said "Wait 'til you hear what I've been through."

NED POTTER
CORRESPONDENT, ABC NEWS

The passage of time has also led me to the conclusion that you did right. — SB

URBANE LEGENDS

Your September '88 report on connectivity, with Steven Bobker's article on laptops, came too late to help me. I took a freighter to New Zealand last December, spent five months down there living in a camper, all the while writing my newspaper column and working on a book. I took my Zenith Z-181 laptop along and transferred some of the files to my Mac 512KE when I returned, but I did it my way. Here's how:

The ImageWriter cable can be used as a null modem, so I just plugged it into the Zenith using a cheap little gender changer and sent the files via communications programs through the printer port into the Mac. Was it too slow? I don't know, because I just set the computers whirring, and by the time I had read my backlogged mail

and mowed the lawn, the job was done. And the price was certainly right.

I used the shareware program Overwood to tidy up the text-only files a little (this one is lightning fast!), and that was it for connectivity. My book chapters all look the same now, whether originally written on the Zenith or the Mac. The Zenith is a better choice than the Toshiba T1000, if only for its big, bright, backlit screen. The best word processor for laptop writing is Textura by Ann Arbor Software, now in version 5.2 and costing a mere \$42.50 as "subscription software"; they send you new features as they are added. It's supplied on both 5¼-inch and 3½-inch disks.

Files can be saved in ASCII format for ease of transfer, and there's a DOS primer in the manual. (Actually, all I needed to do with DOS was format disks, copy disks and files, and set the internal clock in the laptop, so I left the big fat DOS manual at home.)

My whole traveling/writing outfit was less trouble to get on and off ships, planes, and campers than my fly-rod case, and almost as much fun to use.

JAN HAROLD BRUNVAND
SALT LAKE CITY, UT

The writer is the author of a syndicated column and several books on "Urban Legends." — JZ

SHARE THE WEALTH

Not all shareware authors are at it for a living, contrary to the opinions expressed in Stephen Morrill's letter in the September '88 issue. I agree that shareware authors should get more than they're getting (I know, I've released some shareware myself). But, in my case, programming is a hobby that I enjoy very much, and releasing a finished product is something of a reward in itself — though the real thrill comes from receiving notice that someone actually found it useful.

Sure, 95 percent of the people who fail to send in their shareware fees are being rude and ignorant, and certainly shareware is not for everyone or for every application, but shareware programmers should not be shot down for trusting 5 percent of the people. Without shareware, we would never get ac-

cess to small, specialized utilities that would never make the market. We just have to remember the work that went into it, and shell out the \$15 every once in a while.

JEFF KEEGAN
STONEHAM, MA

MON CAPITAL

The comments on "Capital Punishment" in your new Scrapbook section (September '88) were wickedly on target. Sometimes it's a bit disgusting to see how companies flock to the latest fads, like the InterCap and !-names. If you're old enough to, remember the '50s, when items were touted as being "100-percent plastic," "enriched," or "with chlorophyll"; in the '60s, everything was "lemon-scented"; in the '70s and '80s, products full of processed sugar and other chemicals are "All Natural"!

I like your editorial posture. However, your ads — which after all are where the market is — are sinister, with an attitude towards the small user similar to a horse's attitude to the flies that are buzzing around him.

TIM SCOTT
SAN DIEGO, CA

TOUCHY SITUATION

I was recently amazed to find out that my Mac Plus could dial the phone without a modem.

Using HyperCard's Phone Stack with the Speaker button checked for tone dialing, I held the phone up to the Mac speaker, dialed the number, and to my surprise the phone started ringing on the other end. How can my cordless phone understand what my Mac has to say to it without even a single wire?

BEN TYLER
KINGSTON, RI

Remember those little touchtone generators that came with answering machines? Touchtone dialing is based on an audio signal of tone combinations — your telephone picks up the sound from your Macintosh's speaker and treats it the same as it would if you had used the phone's own tone generator. In short, your phone likes your Mac's tone of voice. — JH



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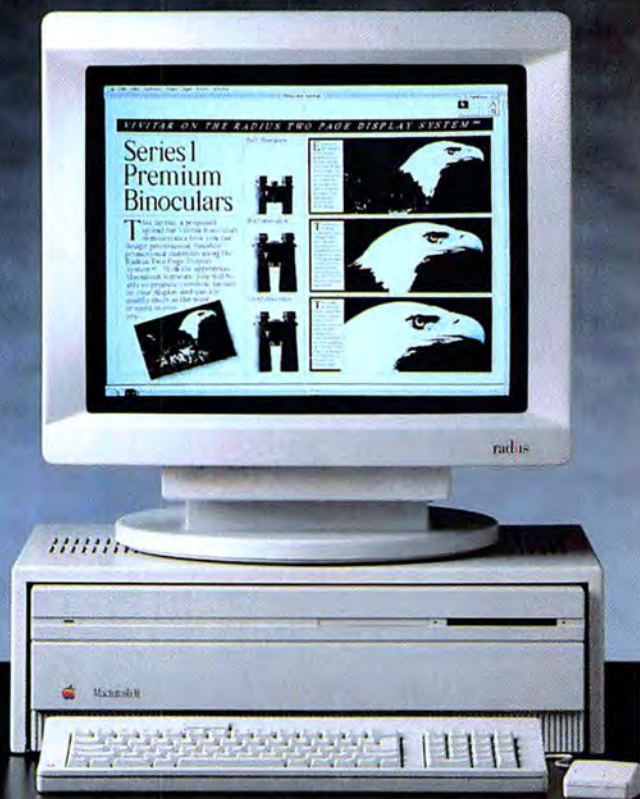
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ALONG CAME A SPIDER

I think I know what happened with the Ventura Publisher PICT images shown in "Moving Pictures" in the September '88 *MacUser*.

The translation to MacDraw accidentally sent a radio-frequency message over the modem which superimposed itself on a ship-to-shore transmission from the ocean liner, jamming the autopilot circuitry in the airplane and causing it to crash. The shock of the impact caused the inkwell to spill, squirting ink into the eye of the waiter. He dropped the tray of food, spilling coffee into the ice cream soda and knocking the telephone receiver off the hook which, in turn, hit a speed-dial button to an underground gambling operation. The person who took the call assumed it was a tip-off to a police raid and he panicked and ripped his receipts off the hook on the wall. The commotion scared one of the customers who was shooting craps and he dropped the dice on the floor, knocking a spider senseless. The spider staggered outside and wove a sporadic, random web in the flowers.

You see, there's a logical explanation for everything!

WAYNE GRAVELLE
SANTA CLARA, CA

Which leaves only one question unanswered: "What was the frequency, Kenneth?" — JZ

FLIP FLOPPIES

Will you please set me straight on disk model numbers (like MF 1-DD, MF 2-DD, MF 2-HD)? I have figured out the first two (Micro Floppy/Single Sided/Double Density and Micro Floppy/Double Sided/Double Density), but I can't figure out what the difference is between DD (Double Density) and HD (High Density), other than \$20 a box.

RAVI D. CHAUHAN
GERMANTOWN, TN

The prices may be different, but the answer to your plea is that it's all hype; there's really no difference. Once you realize this and take note, you'll find things will work out immediately. Or, if you've grown accustomed to acronymese, RE: \$ & c SOS. FYI: DD = HD. QED. NB: AOK ASAP. — JZ

VINTAGE VANTAGE

Through your magazine, I seem to have discovered a new ability of the Mac: It can help produce fine wine! Some of *MacUser's* fine whines of recent vintage include "Why do compa-



When we ran this example of the way Ventura Publisher deals with PICT graphics on a PC vs. the way MacDraw treats the same images (September '88, p. 166), we thought it was due to file format incompatibilities. Spiderman Gravelle set us straight.

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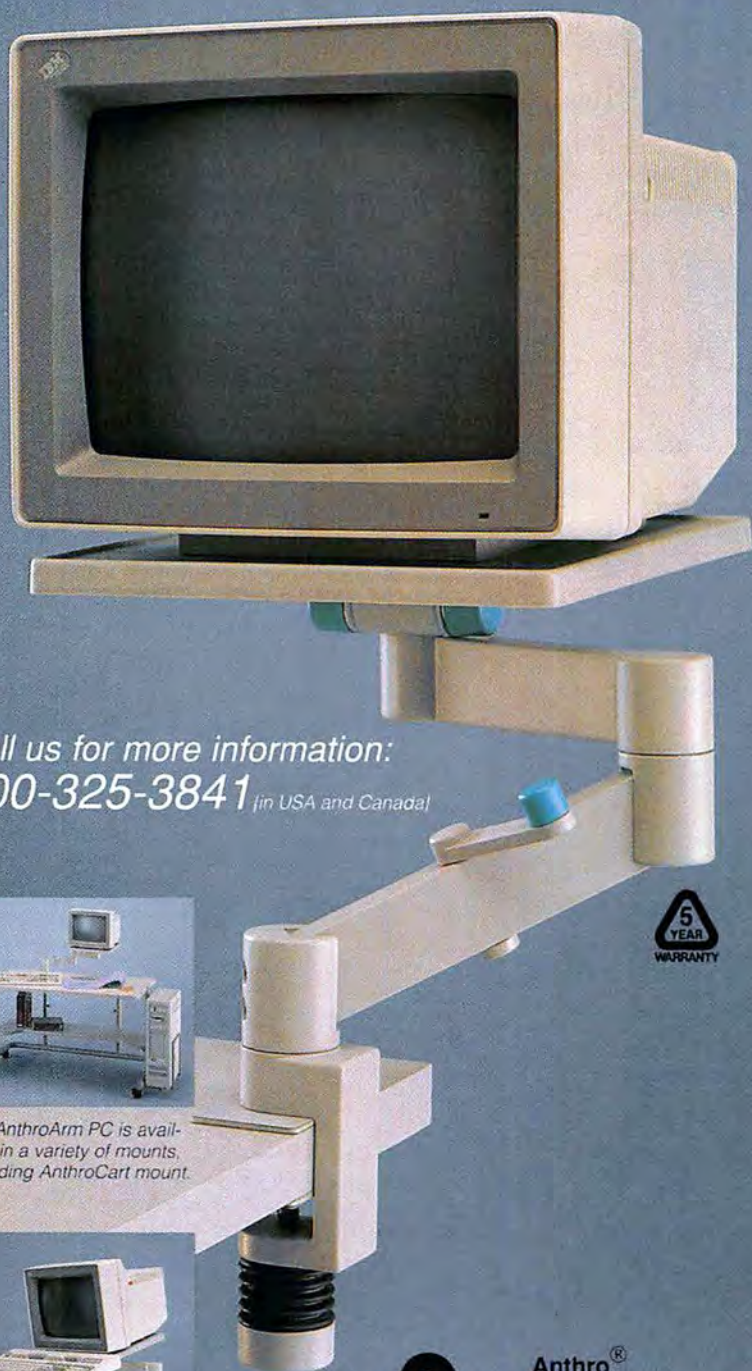
MACUSER

*Licensed only for developers. Prices valid in US only. Requires Macintosh Plus, SE or II with 2 Megabytes of RAM, 5 Megabytes hard disk space, floppy disk drive, and HyperCard 1.2. Includes 30 day installation support. ORACLE database, Hyper*SQL (HyperCard Interface), SQL*Plus, Pro*C, OCI, Database Utilities, System Stackware and Example Stackware. Full networking version is \$999. Copyright © 1988 by Oracle Corporation. ORACLE and SQL*Plus are registered trademarks of Oracle. HyperCard and Macintosh are trademarks of Apple Computer.

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Letters

nies charge so much for software? Why do people make computer viruses? Why do people make pirate software copies?" (to be quoted in a high, nasal tone).

Welcome to the real world, folks. There's evil out there. So what are you people doing about it? Helping some Silicon Valley workaholic get a new red paint job for his BMW?

Perhaps you are just interested in flooding the world with acres of desktop rhetoric to the extent that no one could possibly discern what is actually worth taking the time to read. I have always thought that the neat thing about the Mac was that it was simple. I thought tools were supposed to make life simple. So why does it take 310 pages of rhetoric and advertising every month to address the use of this tool.

Try this on: A "Mother Mac" column — moral agency as applied to personal computing. Desktop social awareness. A few warm fuzzies wouldn't hurt anybody.

SCOTT WILEY
THE DALLES, OR

STRANGE BYTEFELLOWS

One should not complain about a problem if one has no solution to offer. The problem: Apple took my money in March and shipped me part of my order in May. For the rest, I must wait.

I guess it's not so bad: I'm only missing 80 percent of the five megabytes I paid for. In contrast, IBM dealers can and do deliver their products promptly. Apple clearly designs a better machine than IBM. Their quality control is similar. But Apple's service network is nonexistent and their treatment of customers contemptible, while IBM excels in service.

The solution: Apple should design computers and then subcontract the manufacturing, marketing, sales, and service to IBM. The customer could then buy an excellent computer supported by an excellent service team.

Now if we could get Tandy to set the price . . .

GARY D. STORRICK
TRAFFORD, PA

. . . you could call it *IB MacShack*.
— RI

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To exercise that freedom, see your authorized GCC Technologies dealer for a WriteMove demonstration. For the one nearest you, call (617) 890-0880.*



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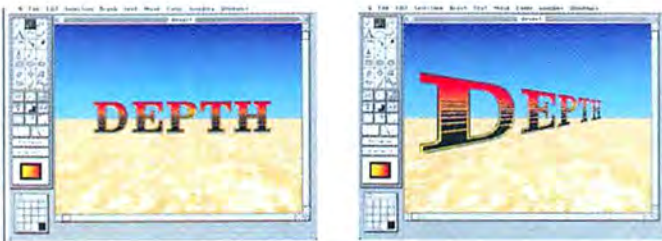
A New Coterie of Paint

Just when you thought it was safe to go buy a high-end color paint program, here come three high-power artist's tools: Studio/8, Graphist Paint II, and Photon Paint. "Ho-hum," you say. But no. These programs make some breakthroughs and overcome the limitations in power and speed that, until now, seemed to be inherent in Mac II color painting software. All three programs offer new and improved color painting tools and special effects. They usher in a new generation of Macintosh painting software that uses the mathematical power of the computer to produce unique effects.

Studio/8 is fast at just about everything, and that's most evident when scrolling or when dragging a complex selection or brush around the screen. It can select multiple areas with any mix of selection tools and criteria, including color range. There's a perspective setup grid that's not only functional and powerful but also fun to play with. It offers new creation tools like the *anything* brush, made from one or more selected image areas (even if they're not contiguous); off-center radial graduated fills; unlimited-length adjustable Bezier curves; tint, smear, blend, smooth, masking, and watercolor effects. You can shear, rotate, and add perspective to text, and you can cut and paste it within a single text block.

It can work in as little as 1 megabyte if you'll settle for black-and-white (two-color), but requires 2 megabytes for full 256-color work. For a tour of the \$495 Studio/8, contact Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171.

Graphist Paint II is a trim French import that's loaded with



Studio/8 selection capabilities excel at isolating an *existing* image from its surroundings. The selected area will be operated on by Studio/8's perspective grid.

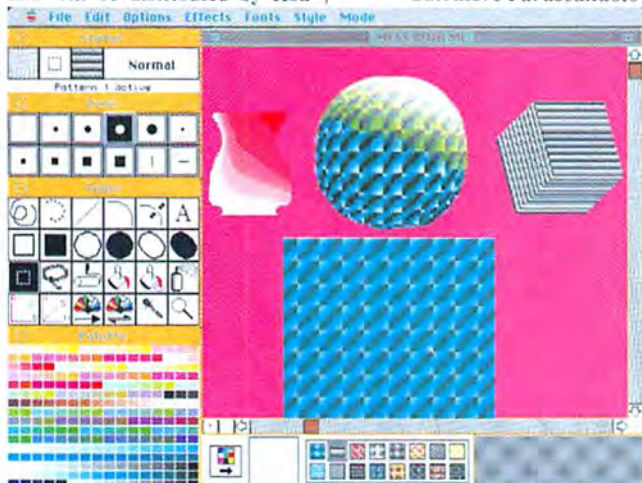


Graphist Paint II's *spherizing* talents produced the bubbles in this partial image. Does this artwork have a French flavor or what?

special tools. Its effects are grouped into families. One family includes smooth, diffuse, blur, thicken, thinner, and dither. There's even a water drop that can be used to blend colors. Another family lets you distort graphics in three dimensions and *spherize* them by wrapping them around a sphere. Shading functions include concentric echo, directional echo, concentric circles, and direction lines.

The stencil capability lets you use another image as a template for drawing with most of the tools, or you can *encrust* (gimme a break!) the drawing area with part of the stencil. Graphist Paint II has tools for color animation, and for editing video images snagged with Data Translation's QuickCapture video frame-grabbing card for the Mac II. It can also import and export a variety

of file formats including paint, PICT, TIFF, RIFF, and PixelPaint. Ooh-la-la! The program costs \$495 and will be distributed by Aba



Photon Paint's pseudo-3-D objects, both regular and irregular, here have been shrinkwrapped with homemade patterns.

Software, 41 Great Valley Parkway, Malvern, PA 19355; (800) 234-0230 or (215) 644-3580.

Photon Paint, the third member of the tri-color trio, has its own specialties, including the ability to overlay a selected graphic onto the contours of an imaginary 3-D shape. The shape can be a ball, cube, cylinder, or freehand rendering. It can also simulate the lighting effects from a user-positioned light source of variable intensity.

Other capabilities include adding, subtracting, and blending colors, as well as exercising control over dithering (mixing of multi-colored pixels) in both vertical and horizontal directions.

Photon Paint can import pictures from other applications in PICT and PICT2 formats, and it can open multiple paintings at once if there's enough RAM. It saves its paintings in an enriched PICT2 format that includes special palette information. It works in any Mac II color mode from 2 to 256 colors. B/W Photon Paint, a black-and-white version that runs on a Plus or SE, comes with the color version. The program sells for \$299.95. Photon Paint is emitted by MicroIllusions, 17408 Chatsworth, Granada Hills, CA 91344; (818) 360-1464.

— Salvatore Parascandolo

Move It

Mac screens are usually static — they just sit there until you move something. So it's quite a shock to see a Macintosh seemingly come alive with fast, movie-like animation in full color accompanied by foot-stomping music. And animation is a real people-pleaser. Visit a demo of MacroMind's VideoWorks II at a Mac expo and you'll find people three or four deep watching the show.

VideoWorks II is now being improved with a new Professional version that adds features needed to create product demos, educational courseware, animated questionnaires, and on-screen training programs.

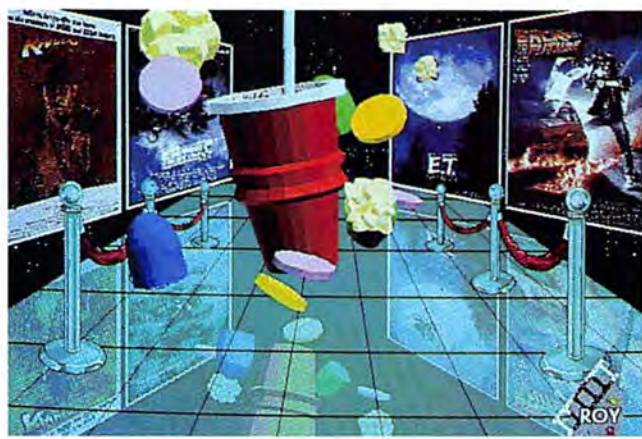
VideoWorks Pro offers a raft of new 24-bit color painting tools including graduated color fills, smearing and smudging, a speck-

led airbrush, and drawing with an object or pattern. Color palettes can be merged so a scene change doesn't create a shocking difference in coloring — unless you want one (to add a shimmer or sparkle to text or graphics, for example).

Business presentations are a breeze with VideoWorks Pro (\$695) because it includes pre-drawn sequences that let you plug in your own data and then watch your bar charts grow like flowers to their newly assigned heights.

A new version of VideoWorks II — with a few improvements, but lacking many of the Pro's features — will still be available, but at the increased price of \$295.

Besides creating its own color graphics, VideoWorks Pro imports images from other applications such as Paracomp's Swivel 3D (\$395). This unique program cre-



Although it has many of the features of a color paint program, VideoWorks Professional also animates color images, turning your Mac II into a virtual movie screen, complete with sound.

ates 3-D objects using an easy-to-learn interface and links them so their movements are restricted, just as our limb motions are restricted in life.

For more information, write or call MacroMind 1028 West Wolfram, Chicago, IL 60657; (312) 871-0987.

— Gil Davis

When Users Talk, Mac Listens

We all talk to our Macs. C'mon, admit it. You've yelled "WHAT?!!!" at your machine more than once. Well, now your Mac can actually do what you tell it to — OK, OK, you know what I mean: Within limits, it'll do what you tell it to. Articulate Systems has just introduced the Voice Navigator 200 and 1000 that let a Mac (Plus, SE, or II) recognize a spoken word or phrase as a command.

The Voice Navigators use spoken commands just like Fkeys: They launch macros, Menus, commands, dialog box prompts, even palette tools can all be selected by simply saying the item's name. Initially, the Voice Navigators have to be "taught" to recognize a

given user's pronunciation of a set of commands. But once taught, those commands can be saved as a document and used with any application that has the same commands.

The commands themselves are structured in a user-definable hierarchy, and each *state*, or level, can have a vocabulary of up to 1,000 commands, depending on the Voice Navigator model used.

Articulate Systems has also integrated the Voice Navigators with HyperCard, creating two stacks that the company has used in demonstrations. The first stack is for Japanese-English vocabulary training. By saying the English term, the user "presses" a HyperCard button that plays back a digitized recording of the Japanese, as well as displaying the word, either in Kana characters or our more familiar Arabic letters.

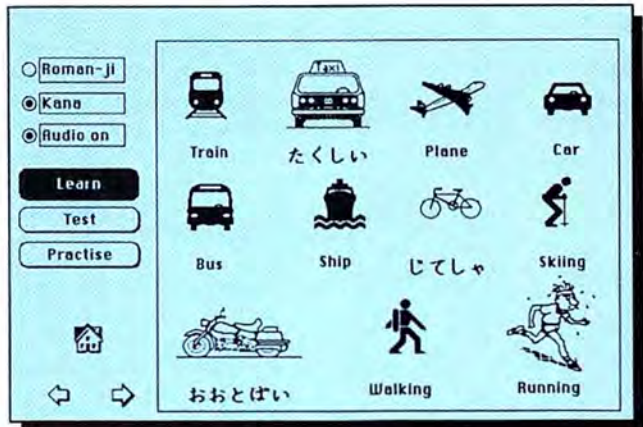
The second stack was developed for NASA and was designed to help the agency test their new space-suit helmet. The helmet's design calls for a pair of video projectors to be built into the helmet.

These projectors, connected to a computer built into the suit, throw the computer's display onto the upper portion of the astronaut's visor. The astronaut then uses voice commands to elicit the required information or conduct status checks.

Articulate Systems' Voice Navigator 200 and 1000 are both SCSI units. The Voice Navigator 200

(with a capacity of 200 words per level) lists for \$750; the Voice Navigator 1000 (with a capacity of — you guessed it — 1,000 words per level) lists for \$1,250. Articulate Systems can be reached at 2380 Fillworth Street, Berkeley, CA 94704; (415) 549-1013. The company expects to begin shipping at the end of October.

— Russell Ito

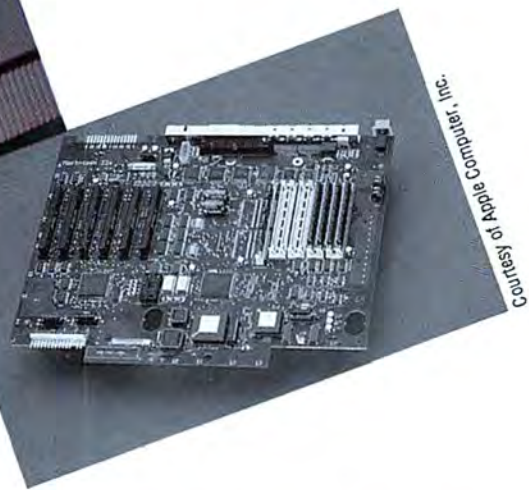


Say the word; hear the word; see the word. Articulate Systems' Voice Navigator voice-recognition system lets you push HyperCard buttons (and a lot more) with just the sound of your voice.

Meet the Mac IIx

Stop calling it the '030something Mac II. Here's the scoop: It's fast, has 1.4-megabyte floppies, and weighs in at nine — count 'em, nine — grand.

Macintosh IIx



Courtesy of Apple Computer, Inc.

It's what the Macintosh community has been waiting for: a next-generation (or should that be NeXT-generation?) Macintosh that's faster than a conventional Mac II, features a 1.4-megabyte diskette drive, and is ready for the future because it contains Motorola's new 68030 microprocessor. The Mac IIx — previously code-named Mustang — also has a healthy respect for the past. It can read the floppy formats of its predecessors, and there's a board-swap upgrade option for earlier Mac II pioneers.

When you see your first IIx, it won't look much different from a Mac II. It uses the II's exterior box, but peek under the hood and you'll see some very important improvements and additions to the logic board.

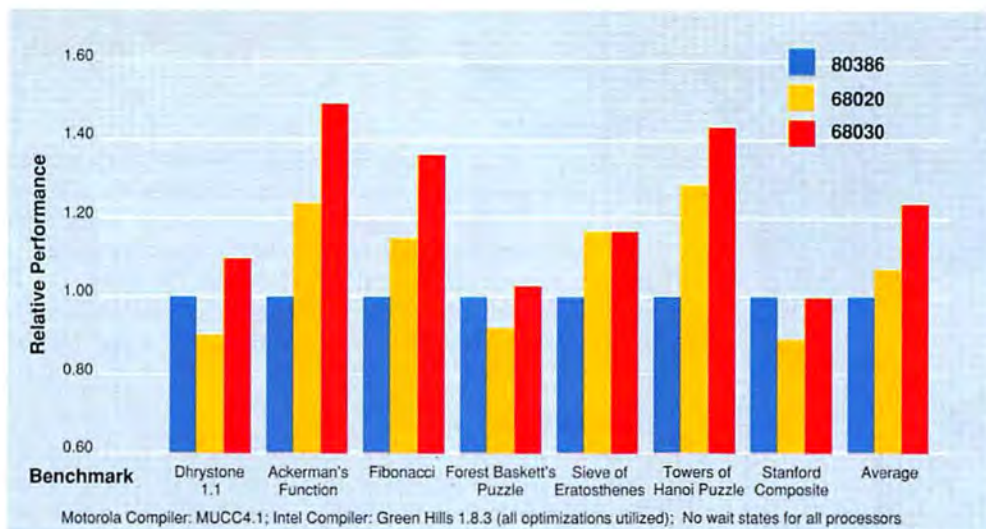
In the first place, there's an '030 microprocessor and 68882 math chip where the II's '020 and 68881 math coprocessor used to

be. It's these integrated circuits that bring an estimated 10- to 15-percent improvement in processing speed over the Mac II, even though the IIx and the II have an identical clock rate of 15.7 megahertz. This gain is largely due to the '030's two built-in caches, one for instructions and one for data, that hold frequently used information in the CPU rather than on the logic board, where access would be slower. (The '020 has only one built-in cache, for instructions.) In addition to this cache-in-your-chips feature, the IIx's math coprocessor is the 68882, which Apple claims is twice as fast as the 68881 for number-crunching applications (although some independent reports dispute this).

Another key advantage of the 68030 is its integral Paged Memory Management Unit (PMMU), which is mandatory for multitasking systems like UNIX,

A/UX, and a future Mac operating system. The PMMU translates the CPU's memory requirements into physical memory locations. For example, if the logic board's main memory reaches capacity, the PMMU can use a hard disk to handle the overflow by using "virtual" memory. This means a computer is no longer limited by its main memory, so several applications can run at the same time — albeit a little more slowly. (A PMMU is an optional separate module on the Mac II.)

Toward the middle of the logic board is a single in-line module that's much larger than a memory SIMM. It holds four ROMs on one easily changed board instead of the II's four individual ROMs, which were more cumbersome to install and thus more prone to damage. Mac IIx owners may one day plug in a new ROM SIMM to realize such mouth-



The performance of Apple's new Macintosh IIx will inevitably be compared with that of the original Macintosh II and of IBM's high-end PCs — such as the PS-2/70 and 80 series, which use Intel's 80386 CPU. Powering the Macintosh II is Motorola's 68020, while the IIx uses the new 68030. This chart shows the results of a series of standard benchmark tests Motorola performed on the three CPUs using the same 16-megahertz clock rate. Overall, the '020 was about 8 percent faster than the '386, and the '030 was 23 percent faster than the '386. On some of the text-intensive tasks (the Dhrystone, Puzzle, and Stanford benchmarks), the '386 beat the '020, but the '030 came out on top in both text and number-crunching tests. Chart reprinted with permission of Motorola.

watering possibilities as true multitasking, video animation, video playback of two-hour movies on a compact disc, video recording, CD-quality audio, and sophisticated image processing.

SuperDrive is the name of the new diskette drive that can write 1.4 megabytes onto a 3.5-inch disk and read data from older 400K and 800K diskettes, as well as from foreign formats (like OS-

2, MS-DOS, and Apple II). A translation program in the works will convert Mac file formats to MS-DOS formats so that a MacWrite file could be read by, say, WordStar on an AT-style

PC, and vice versa.

The standard IIx will be offered with SuperDrive, 4 megabytes of RAM, and an internal, 80-megabyte hard disk. Other aspects of the IIx are identical to those of the II: There are the same six NuBus expansion slots, six built-in ports (two serial, two ADB, one SCSI, and one sound), stereo sound chip, and choice of keyboards and monitors. The IIx will come with the latest operating system, which includes Apple File Exchange and HyperCard software.

With a list price somewhere between \$8,700 and \$9,100 for the basic configuration (without monitor or video board), the IIx will sell for about 10 percent to 15 percent more than a comparably equipped II. The price is high, by Mac standards, but competitive in the market for high-end UNIX, CAD/CAM, and engineering workstations. (A less expensive configuration will be available with no internal hard drive.) Will IIx mark the spot, or will it be dubbed the Macintosh II-much?

Stay tuned.

—Gil Davis

Features and components in the Mac SE, II, and IIx

	Macintosh SE	Macintosh II	Macintosh IIx
CPU	Motorola 68000	Motorola 68020	Motorola 68030
CPU clock rate	7.8 MHz	15.7 MHz	15.7 MHz
CPU caches	None	1 (instruction)	2 (instruction and data)
PMMU	None	Optional	Integrated
Math coprocessor	Optional	68881	68882
Standard memory	1 Mb	1 Mb	4 Mb
Memory expandability	4 Mb	8 Mb	8 Mb
ROM size	256K	256K	256K
ROM change	Dealer	Dealer	User
Diskette size	3.5 inches	3.5 inches	3.5 inches
Diskette capacity			
400K	Yes	Yes	Yes
800K	Yes	Yes	Yes
1.4 Mb	No	No	Yes
Diskette formats			
Macintosh	Yes	Yes	Yes
Apple II/GS	No	Yes	Yes
MS-DOS	No	No	Yes
OS-2	No	No	Yes
Interfaces			
Serial	2	2	2
SCSI	1	1	1
Apple Desktop Bus	2	2	2
Sound	Mono	Stereo	Stereo
Expansion Slots	1 SE Bus	6 NuBus	6 NuBus
Standard configuration			
RAM	1 Mb	1 Mb	4 Mb
Diskette drive	1 (800K)	1 (800K)	1 (1.4 Mb)
Internal hard drive	20 Mb	40 Mb	80 Mb
Price	\$3,698	\$5,498 ¹	Estimated \$8,690 – \$9,085
Minimum configuration ²			
Price	\$2,898	\$3,898	Unknown at press time

1. A Mac II equipped with 4 Mb of RAM and an 80-Mb internal hard drive would cost about \$7,900.

2. In the minimum configuration, no internal hard drive is included. On the SE, a second diskette drive is added.

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NEWS LINE!

New Math

AUSTIN, TX — A new, pin-compatible 68882 chip from Motorola can accelerate mathematically intensive computations on a Mac II by as much as 50 percent faster than the resident 68881 math coprocessor. Even more speed — a two- to four-fold speed increase over the 68881 — is available from the 68882 using specially optimized software and a 33-megahertz clock rate. List price for the 68882 is \$708 in single quantities.

Unexpected Impact

SAN FRANCISCO, CA — Ashton-Tate has filed a complaint in San Francisco's U.S. District Court against Bravo Technologies of Berkeley, CA, in response to a letter from Bravo president Rick Ross. Ross had alleged that Bravo partner Encore Systems had "secretly entered into an agreement with Ashton-Tate" to develop software similar to Bravo's MacCalc spreadsheet and to other ideas previously generated by Ross about an enhanced spreadsheet product. In its court action, Ashton-Tate seeks declaratory relief over questions about the copyright and ownership of its Full Impact spreadsheet.

Nuvo and Jasmine Clash

SAN FRANCISCO, CA — Nuvo Labs has filed a complaint against Jasmine Technologies in U.S. District Court here, charging Jasmine and a former Nuvo Labs employee with copyright infringement and misappropriation of trade secrets. The suit charges that source code from Nuvo Labs' proprietary Hard Disk Partitioner software has ended up in a similar Jasmine product called DriveWare. Jasmine has replied that the suit is without justification.

SuperMac and Levco Going It Alone

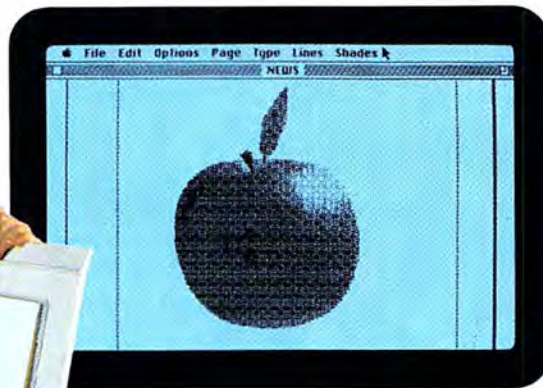
MOUNTAIN VIEW, CA — Both SuperMac and Levco have announced plans to break away from its parent company, Scientific MicroSystems of Mountain View. SuperMac founder Steve Edelman will participate in the new venture, to be financed by a group of venture capitalists headed by Sigma Partners of San Jose, CA. In a similar move, Levco wants to buy back its stock from SMS, which has reportedly been experiencing financial difficulties.

Thin Bits ... Apple Computer has undergone yet another corporate shake-up. Under the latest restructuring, Apple will be divided into four internal operating divisions: Apple Products, Apple Education and Apple Pacific, Apple Europe, and Apple USA. A division president will head each section. Jean-Louis Gassée will lead the Apple Products division, which consolidates Product Marketing, Worldwide Manufacturing, and R&D.

Mediagenic, which used to be known as Activision, now has a new name for its Macintosh products division, TENpointO, so named to recall perfect Olympic performances. **Discovery Systems** has filed for Chapter 11 protection in the U.S. Bankruptcy Court. Discovery is continuing to master and produce CD-ROMs at prices said to be unusually low — \$1,500 per master and \$2 per disk ...

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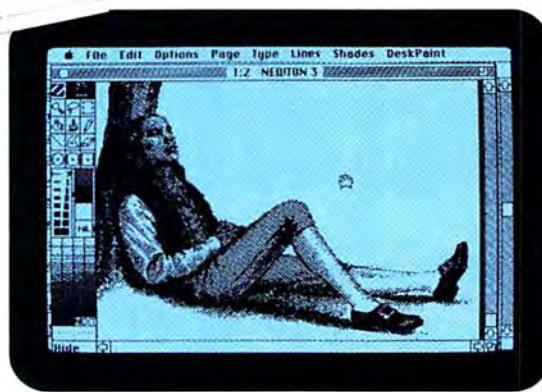
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Scan. In less than 30 seconds, your image is transferred from the HP ScanJet scanner to your Macintosh screen.



Preview Scan. To add another image without leaving your application software, pull down the scanning desk accessory and begin with Preview Scan from the menu.



Edit/Paint. Bring in DeskPaint to touch up your images. Menus and point-click commands make it easy.



Place. Bring in your mast-head from memory, place the scanned images wherever you want, copy and place multiple images, key in text, wrap, enlarge or shrink to fit.

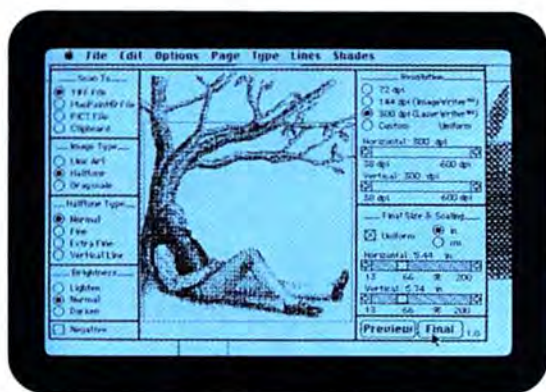
The HP ScanJet scanner puts you several steps ahead of other Macintosh-compatible scanners. Because our desk accessory approach lets you scan, edit and paint images all together on the screen. With-

out having to jump from one application to another. HP's Desk Gallery software makes it all possible. So you can add the impact of photographs, illustrations and logos to your presentations, proposals, sales

make it this easy.

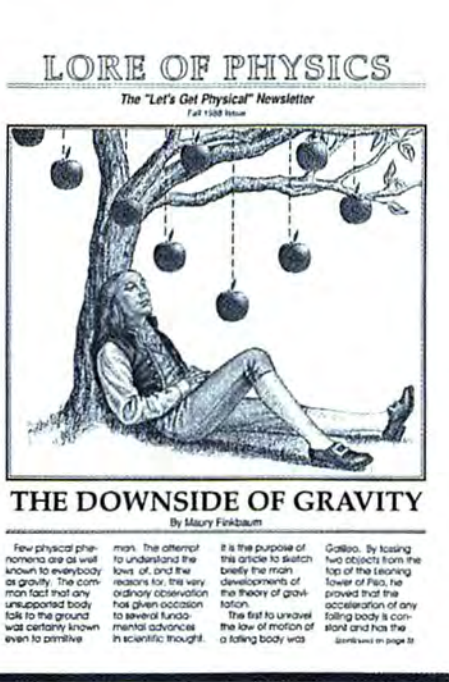
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3 Million Printers With No Waiting

You're not restricted to your own printer anymore. Now you can print to any one of 3 million facsimile (fax) machines throughout the world using a relatively new device called the fax modem. Apple's entry into this burgeoning business market is called, as you might guess, the AppleFax Modem. It sends and receives text and graphics documents at a speed of 9600 baud — much faster than the 1200- or 2400-baud modems most of us have been using to access bulletin boards.

When you send a document, you can specify how the envelope should read and when to send it — possibly late at night, when telephone rates are lower. Once received on a fax machine or fax modem at the other end, your document is captured on disk where it is ready to be edited or printed. Images can also be scanned into the Mac and sent as a fax document.

The AppleFax Modem was announced in August 1987, but shipment was held up until July 1988 so Apple could enhance its capabilities. However, one major deficiency remains: its inability to receive or send fax messages without running the AppleFax program as a main application. A solution is available from Solutions, whose BackFAX software will overcome this deficiency by giving Apple's fax modem the ability to transmit or receive documents in the background, with or without MultiFinder.

Apple's \$699 fax modem will probably do the most to legitimize turning Macs into fax stations, but it's not the only frog in the pond. Abaton's \$495 fax modem is lower in price than Apple's and adds a 1200-baud conventional modem to the same box. Abaton's InterFax works at 4800 baud with both Group II and III fax machines (Apple's only works with Group III). Like BackFAX, it can



Turn your Mac into a facsimile machine with this AppleFax Modem that can automatically send and receive fax documents or images brought into the Mac using a scanner.

transmit and receive in the foreground and background, with or without MultiFinder.

If you want to fax while on the road, the Fax STF from STF Technologies just might be the ticket. It's slightly smaller than an external drive, which makes it highly portable. Fax STF (\$695) receives incoming fax messages in the background, via MultiFinder, but won't transmit without becoming the main application. It schedules single or group transmissions, in-

cludes multiple phone books, and operates at 4800 baud.

For further information about the Fax STF, contact STF Technologies at P.O. Box 247, Higginsville, MO 64037; (800) 426-1679 or (816) 584-7727. Apple is located at 20525 Mariani Avenue, Cupertino, CA 95014; (408) 996-1010. Solutions can be reached at P.O. Box 989, Montpelier, VT 05602; (802) 229-9146. Abaton can be reached at 48431 Milmont Drive, Fremont, CA 94538; (800) 444-5321.

— Gil Davis

Scanning With Apple

Apple's pricing has always put a premium on buying Apple products. So when Apple comes out with an important new offering and starts talking about "value," that's news.

Apple's new flatbed scanner is the first example of their newfound frugality. The Apple Scanner supports 16 levels of gray, 300-



dpi resolution, and comes bundled with two software applications. Compared to similar scanners, Apple's list price of \$1,799 is toward the bottom of the scale.

Of course, Apple's devotion to the *V* word isn't entirely altruistic. The price has been deliberately kept low to encourage developers to adopt the Apple Scanner as a standard.

Apple's scanner software includes Bill Atkinson's HyperScan, which uses point-and-click routines to adjust a scanned image's brightness, contrast, or size (7 to 400 percent). It then places a paint-format copy of the graphic on a card for future reference. HyperScan can also sharpen the edges of an image or overlay it with one of 36 screens.

Apple's other software application, AppleScan, adds even more features than HyperScan. AppleScan handles up to 16 gray levels. It accepts line, halftone, and gray-scale art, and it can reduce or enlarge an image from 7 to 400 percent, depending on the image resolution. Users can quickly ascertain the best compromise between a scan's brightness, thresh-

old, and contrast through a Preview mode and test strip procedure. The latter prints a series of small images along with their respective settings.

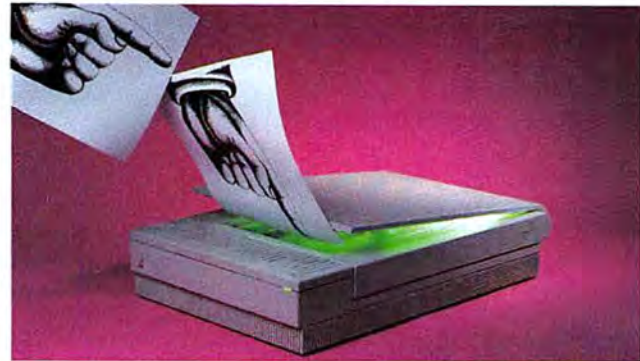
Apple's scanner can also be used with a fax modem, which results in better image quality than a normal fax-to-fax connection. For further information, contact Apple at 20525 Mariani Avenue, Cupertino, CA, 95014; (408) 996-1010.

— Gil Davis

The Video Spectrum

Desktop video is just getting launched, and already things are changing. SuperMac Technology has just introduced the Spectrum/8 Series II 8-bit color video card, one of the first second-generation video boards for the Mac II.

Using a new design, SuperMac has transferred the concept of the "virtual desktop" (that is, one that's bigger than the physical



Apple's new scanner creates an important link between an unlimited number of paper-based images and their digitized versions.

screen) from software to hardware. SuperMac's desktop can be as large as 4,096 x 1,536 pixels (monochrome) or 1,024 x 768 (256-color mode). Compare this with the standard Apple monitor size of 640 x 480. By putting the virtual desktop on the board, the Spectrum/8 enhances the Mac's performance, because the desktop doesn't take up valuable memory or require any CPU activity.

The Spectrum/8 Series II is designed to work with Apple's 13-inch color monitor as well as with units from NEC, Mitsubishi, Sony,

Taxan, and Conrac. SuperMac claims that the board will work with almost any monitor but cautions that some "unusual monitor configurations" may require "minor customization." The Spectrum's list price of \$1,895 isn't cheap, but SuperMac is offering a special enticement: They're bundling the board with PixelPaint 1.1, which ordinarily lists for \$495.

SuperMac Technology is located at 295 North Bernardo Avenue, Mountain View, CA 94043; (415) 962-2484.

— Ethan Edwards

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RUMOR MANAGER


 A major Detroit car manufacturer has become an Apple VAR, and through a very special arrangement has obtained partially assembled SEs with special frames and no cases. These units are currently being tested as possible built-in dashboard options on their top-of-the-line cars. The keyboard would normally be snapped into a slot but would be removable for laptop use. The keyboard (which will not be an Apple product) will have a built-in trackball.

 The first mass-market voice-recognition package will be a small microphone and box that connects to one of your ADB ports. It'll have a limited vocabulary (maybe ten words) and will be able to learn how one person (you, usually) pronounces them. It will then be able to control the buttons (or most of them) in dialog boxes.


You'll always be able to select a default (heavily outlined) option by saying "Go ahead" and you'll be able to teach it commands like Yes, No, Save, and Cancel. Text information (such as file names) will still have to be typed in this first version. The actual software and hardware are cheap, but the novelty and development costs will probably result in a price tag over \$100 when the Talk To Me box is offered for sale early next year.

 Another first-generation voice-recognition program is likely to be the audio-correction program for word processors now being programmed. Here's how it'll work: You look at your document on the screen. When you see something that needs correction, you simply tell the program what word you wish to correct or modify. You'll have to speak distinctly

and fairly slowly, and you may have to spell things for it. It's not going to be terribly bright. The two things holding this product up at the moment are the costs of the new technology that voice-recognition hardware requires and the software problems involved in creating the audio-directed search routine. There's one other major problem: speed. It's likely that good mouse-editing techniques will be faster than audio correction for some time to come.

 Remember the Suitcase and Font/DA Juggler? The hottest utilities of 1987? They're the nice, unobtrusive programs that opened new vistas in DA and font usage. Well, we have a line on what just might be the next great, unobtrusive utility program. Right now its name is DiskBoss. What it does is manage your disk, automatically optimizing your

files and directories and patching the operating system where it's inefficient (for example, substituting its very fast, very efficient, and very safe copy routines for the slower and less efficient Finder copy routines). It offers many other benefits, and while it generally remains unseen, the results sure don't. We've seen a first-cut version in action, and while it's not going on any of our machines — yet — it sure is slick. By the way, it's also a tri-coastal product, with developers on the Atlantic, Pacific, and Gulf coasts.

 Just when you thought high-end printing meant fast, color or laser printing, something entirely new comes along. It's a fairly fast engine (14 pages per minute, all text) that prints both sides of the page simultaneously. The folks who showed us the prototype are European, but they

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- Convert existing text documents to ArchiText and explore new relationships, trends, ideas, etc., hidden in the text.

ArchiText... \$349.95. Demo Disk... \$10.00. Requires at least a Macintosh Plus using System 4.2 or later and Finder 6.0 or later.

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were very coy when we asked who made the engine. All that they'd say for sure was that it wasn't made in the Far East! Anyway, the prototype box was really big and its performance was nothing to write home about. For now, the printer relies on a lot of custom, special-cased software. The developers promise that, upon release, it'll print from all the popular heavy-duty word processors (sorry, MacWrite) and page-layout programs. Availability is within a year or so, and we were laughed at when we asked for an approximate price.

Now that fax modems are a reality, the next step is the multipurpose graphics-communications peripheral. Are you ready to plug a phone cord directly into your printer, or scan a book page and have it come out of a computer across the country and in real

time? Those are some of the possibilities of these new machines. There are at least two (and we'd be shocked if there weren't a lot more — this is hot stuff) companies hard at work. One of the projects we know about is a laser printer/fax/modem, while the other combines a flat-bed scanner, a fax, and a modem. With fax component and modem component prices and sizes both dropping rapidly, these combinations should cost only slightly more than the base (the printer or scanner). And since most of the development is the work in combining parts from established technologies, we might see the first combopipherals by early next year.

One of the major computer retailing chains is about to set up an independent subsidiary that will fill the niche Apple Computer very nicely left open. If you

buy AppleCare for your Apple computers, you are still responsible for the grief and cost of bringing any and all defective units to your dealer for repair. There is no official Apple on-site service program (compare that to the way IBM sells PC service). This new operation will be a nationwide on-site computer service company, designed primarily to serve large business accounts. The plan is for companies to enter into company-wide contract service agreements. The service companies will also do single "house calls," but at rates substantially above their contract prices. And those contract prices aren't going to be cheap. But considering the real costs of downtime, especially when the offending equipment must be taken to an off-site service facility, the prices are going to look very reasonable.

Have you heard any good rumors recently? Started any yourself that you'd like to take credit for? Can you share your "knowledge" with us? Does your legal department agree? Will you share anyway? If we use your rumor, we'll send you a token of our appreciation and promise not to use your name. Anonymous contributions also accepted. Contact the Rumor Manager by regular, slow, old-fashioned U.S. Mail or fast, modern electronic mail. Our old-fashioned address is Rumor Manager, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404.

Our newfangled electronic addresses are MacUser (on MCI Mail), 72257,2671 (on CompuServe), and X0259 (on AppleLink). No calls, please; the Rumor Manager has an unlisted number and much prefers it that way.

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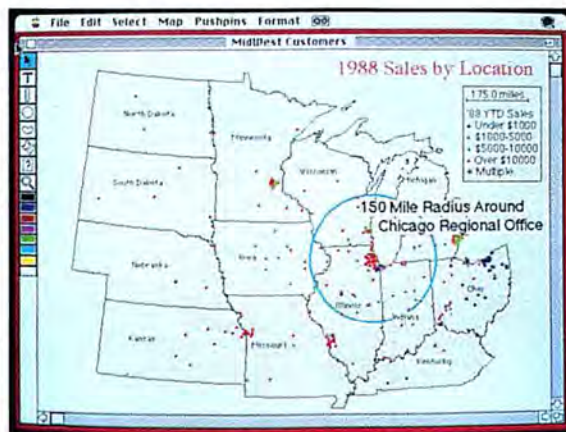
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Desktop Presentations What's Missing?

	Microsoft PowerPoint 2.0	Cricket Presents 1.0	Letraset ReadySetShow 1.0
Find/Replace		Ø	
Import from external file	[1]	[1]	[2]
Key-driven size change [3]	Ø		
Case changing	Ø	Ø	
Subscripts/Superscripts	Ø		Ø
Kerning	Ø	Ø	
Style sheets	Ø	Ø	
Wrap around irregular graphic	Ø	Ø	
Lock object	Ø	Ø	
Center object on slide	Ø		
Hairlines	Ø	Ø	
Arcs	Ø		Ø
Freehand tool	Ø		Ø
Crop graphic		Ø	
Arrows	Ø	Ø	
Import TIFF directly	Ø	Ø	
Import RIFF directly	Ø	Ø	
Background gradation		Ø	Ø
Colorize B/W PICT			Ø
Colorize bit map			Ø
Multiple duplicate of objects	Ø		
Colors show as patterns on SE/Plus			Ø
Colors print as grays			Ø
Genographics driver output	[4]	Ø	Ø
Autographix driver output	Ø		Ø
PICT2 output		Ø	
TIFF/EPSP output	Ø	Ø	Ø
Color separations	Ø	Ø	
Scale contents to large screen			Ø
Transition effects (wipe, dissolve)	Ø		
Create business chart	Ø		
Import chart data	Ø	Ø	
3-D chart effect	Ø		Ø
Create tables	Ø		[5]

Ø = Missing Piece; (no mark) = "It's in there"

NOTES:

- [1] Only Acta or MORE files
- [2] Any text file plus MacWrite- and Word-formatted files
- [3] Shift-Command-> for adjusting font sizes visually
- [4] Until driver ships, service must recreate slides from hard copy
- [5] Cut and paste from the chart to a text box and add tabs

Hot Stuff

(Features that go beyond the call of duty)

Microsoft PowerPoint

Graded backgrounds with 12 variations; outstanding templates; clear guidance on what color combinations work best.

Cricket Presents

Includes Acta, a text outliner DA, for text pre-processing; subscripts/superscripts; link to large PICT and EPSF.

Letraset ReadySetShow (a.k.a. StandOut!)

Prints color separations with names of colors; pictograms (graphs with pictures); glossary; style sheets; customizable arrowheads; movable pie-chart pieces.

Glaring Omissions

None of the film recorders or slide services support PostScript. That means that your type will have "jaggies" unless you use specified fonts (usually Times, Helvetica, Courier, and Symbol) or their special fonts. And all but the Mirus FilmPrinter limit you to 256 colors or less, so graded backgrounds won't look their best. No one currently handles EPSF or TIFF graphics. Bit-mapped graphics will have "jaggies" too, if done at 72 dpi (dots per inch). PICT and PICT2 are the only graphics you can expect to come out looking good. Whether you use a slide service or a film recorder, get the facts on typeface, picture, and color limitations before you invest time or money.

Work-Arounds

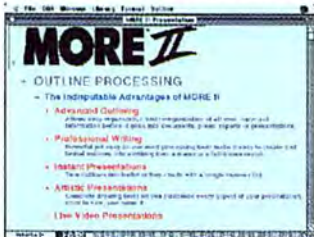
- Charts and tables created in Excel, Microsoft Chart, or Cricket Graph can be imported via the Scrapbook.
- For maximum flexibility on handouts, you might want to "clone" your presentation. Then modify the speaker notes to be a handout.
- If you have a color monitor, you can shoot slides directly from the screen. For best results, shoot a large monitor using Kodachrome 100-speed film, 1-second shutter, darkened room, and telephoto lens.

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A Closer View

Take a close look at the Mac. Take an even *closer* look at the Mac with CloseView, from Berkeley System Design, which makes the Macintosh more accessible to visually impaired users.

CloseView is a free, entry-level version of inLARGE, Berkeley System Design's \$95 software for the partially sighted. Apple is now shipping CloseView as part of the System 6 utilities disk. By accessing CloseView via the Control Panel, you can magnify anything on the screen by 2 to 16 times or invert the screen to white on black. The magnified area adjusts to your typing and mouse movements. And one of CloseView's biggest advantages is that it's free; comparable capabilities on other machines can cost as much as \$2,000.

CloseView accommodates fundamental needs for the visually impaired, but inLARGE offers additional, more flexible features, including automatic scanning for reading, magnification of a portion of the screen, horizontal and vertical image stretching, and full documentation in large print and on-disk. When CloseView's screen is inverted but not magnified, a small frame moves in the window around the area that would normally be magnified. On the inLARGE screen, however, this frame can be turned off when the screen is inverted. Persons with visual field defects can change the Mac's standard arrow cursor to a full-frame cross-hair so that the cursor can be easily found.

Both inLARGE and CloseView are compatible with most Macs (inLARGE doesn't work on the Mac II and CloseView doesn't work on the Mac 512), and inLARGE's Set Startup option lets you program the Mac with certain customized features that automatically work with any application when the Mac is turned on. This enables people with visual impairments to operate any applications on the Mac independently after inLARGE has been programmed once. For more information about CloseView or inLARGE, contact Berkeley System Design, 1700 Shattuck Avenue, Berkeley, CA 94709; (415) 540-5537.

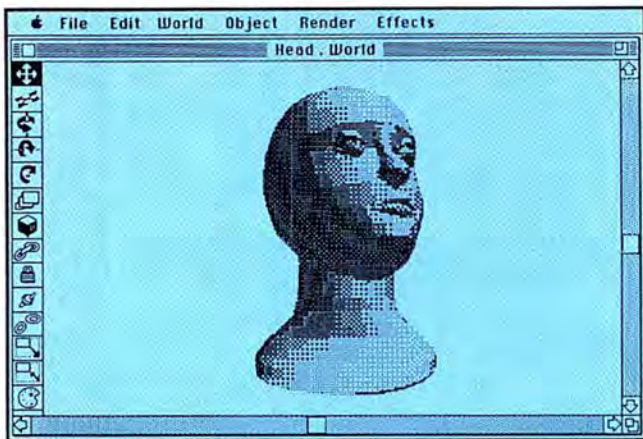
— Shelley Zulman

As the World Swivels

Another door to the third dimension has just opened. Swivel 3D can take you into a full-color universe where you can create solid objects and then reshape, rotate, join, and animate them with freedom and easily accessed power. Its user interface lets you manipulate an electronic object almost as if you were holding it in your hand.

Swivel 3D renders fully shaded solid objects very quickly on the Plus and SE, but on the Macintosh II it's a speed-demon, and you get 16.7 million colors to boot. The program also features Tween animation of 3-D objects, and it can save its frames as full-color Scrapbook pages which you can later import into VideoWorks II.

To make a 3-D object, you draw its contours from three views: Cross-section, Side, and Top. Swivel converts your outlines into an appropriately shaped solid. You can combine multiple solids to



Ahead of its time. Using Swivel 3D you can create figures like this that can be animated in VideoWorks Pro.

make complex shapes.

Swivel 3D lets you group or *link* objects, but not necessarily as a rock-hard aggregate. Objects can be free-linked, ball-jointed, or fully locked (normal group). Depending on your choice, you can permit the parts of a group to slide or pivot independently, like doors on a car, but when the car is moved, the doors move with it. You can edit all aspects of an object at any time, even while it's linked.

Swivel 3D objects can cast shadows onto themselves or other objects. You can even project color or monochrome Clipboard graphics onto your 3-D world, and the image wraps around the lumps, nooks, and crannies of your objects (surface mapping). It's your basic \$395 must-have.

Wanna Swivel? Contact Paracomp, 123 Townsend Street, Suite 310, San Francisco, CA 94107; (415) 543-3848.

— Salvatore Parascandolo

Mach Four and Climbing

OK, so you like the mouse, but somewhere deep inside something's been gnawing at you. The kind of craving you can't confess even to your closest friends — a primeval desire for a joystick! If this sounds like you, don't see a shrink, get the MACH IV PLUS

joystick, from CH Products.

The MACH IV PLUS offers two operational modes: absolute and rate. In absolute mode, it tracks just like a mouse. In rate mode, the cursor follows the direction of the joystick as the stick is moved from the neutral center position.



If deep down you secretly crave a joystick, the MACH IV PLUS-ADB, from CH Products is for you. It also comes in a version for the Mac Plus.



CH Products' MIRAGE-ADB is an interface unit for anyone who already has a MACH II, MACH III, or FlightStick joystick, and wants to plug them into an SE or Mac II. There's also a version for MacPlus users.

The cursor will also move faster as the stick is moved farther from center.

Flipping a switch converts the MACH IV PLUS into a multibutton games joystick, but since real Mac hackers don't play games, you don't need to know this.

The MACH IV PLUS comes in two versions: the MACH IV PLUS-Quad, for the Mac Plus, and the MACH IV PLUS-ADB. Both versions list at \$89.95.

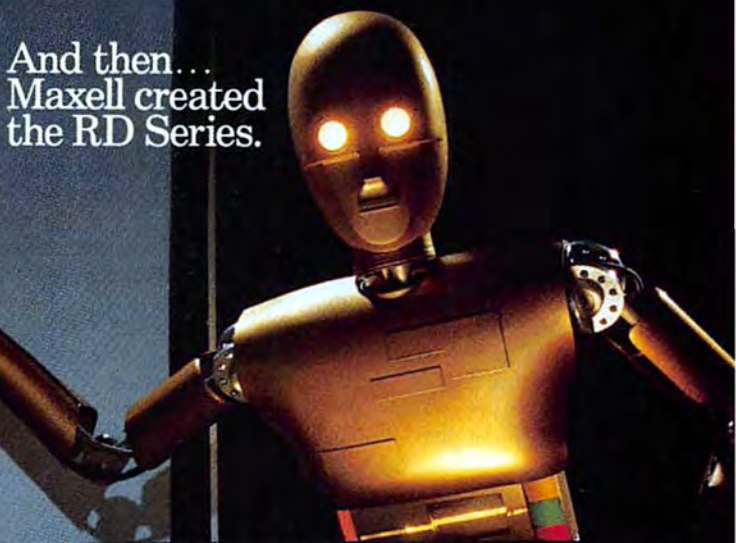
And for those of you who already have the MACH II, MACH III, or FlightStick joysticks (of course, you were very young and impressionable when you bought them), CH Products has also introduced the MIRAGE, a joystick interface. You just plug your joystick into the MIRAGE, then connect it to your Mac, and you're off. The MIRAGE also comes in Plus and ADB versions: the MIRAGE-Quad and MIRAGE-ADB. Their list price is \$54.95.

For more info, contact CH Products at 1225 Stone Drive, San Marcos, CA 92069; (619) 744-8546.

— Russell Ito



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UPDATES

If you're Rip van Winkle, you have a pretty good excuse for not knowing about the latest developments in Mac software. But even if you haven't been asleep for 20 years, you can still have problems finding out about all the new programs and updates that come out every day. Keeping up with the latest versions lets you get the most out of your software. For those of you who have been nap-

ping, here's a list of the most recent versions of many popular programs (as of press time). To see if you have the most current versions, check the About... item at the top of the Apple menu when you run a program.

Realizing that mistakes will be made, the folks at Aldus have allowed you to Undo and Redo up to 100 moves in FreeHand 2.0. Another big feature in this new ver-

sion is the ability to import, open, and edit a TIFF, PICT, or Excel file within the program. QuarkXPress, now version 2.0, hasn't been sleeping either. This new version includes style sheets.

The version numbers shown for System software apply only to the Mac Plus, SE, and II. Mac 128K owners should use System 2.0 and Finder 5.1. For those with the 512K, 512KE, or XL, you should be

running System 3.2 and Finder 5.3.

All programs listed here are HFS compatible. From this chart, you can extract the following information: CP or NCP, copy protected or not; //, programs we have found to be Mac II compatible (not yet a comprehensive list); and S, shareware (try before you buy). Changes and new listings are in **bold**.

A.A.L.S. Prolog	M1.15	NCP	FontTastic Plus	1.4	NCP//	MacNasy V2	2.8	NCP	QUED/M	2.04	NCP
Acta	2.0	NCP//	Font/DA Mover	3.8	NCP	MacPaint	2.0	NCP//	QuickKeys	1.1	NCP//
AMS General Ledger	2.08	NCP	Fontographer	2.3	CP	MacPalette	1.0	CP	QuickWord	2.0	NCP//
AppleShare	1.1	NCP	Forecast	2.0	NCP//	MacPascal	2.1	CP	Rags to Riches	3.0	CP//
Accountant, Inc.	2.1	NCP//	4th Dimension	1.0.6	NCP//	MacProject II	1.0	NCP//	Ragtime	2.01	NCP//
Aztec C	3.4b	NCP//	Frame Mac	1.1	NCP//	MacProof	3.0	NCP	Read-It!	1.1	NCP//
Backgrounder	1.2	NCP	FreeHand	2.0	NCP//	MacSafe	1.08	NCP//	Ready, Set, Go!	4.0a	NCP//
Back to Basics	1.03	NCP	FreeTerm	2.0	NCP//	MacSchedule	1.0	NCP//	Record Holder	2.1	NCP
Balance of Power	1.03	CP	FullPaint	1.0	NCP	MacSchedule	1.1	CP//	REdit	1.2	NCP
Bulk Mailer	3.0	NCP//	FullWrite Professional	1.0	NCP//	MacScheme +			Red Ryder	10.3	NCP
Business Filevision	1.1	NCP	Gato			Toolsmith	1.51	NCP//	Reflex Plus	1.01	NCP//
CalendarMaker	3.0	NCP//	General	3.3	NCP	MacServe	2.3	CP//	Reports	1.2	NCP//
Capture	1.1	NCP//	GeoQuery	1.01	NCP//	MacSpec	1.3	CP	ResEdit	1.1b7	NCP//
Chart	1.02	NCP	Glue	1.04	NCP	MacSpin	1.1	CP	Sargon III	1.0	CP
Chooser	3.3	NCP	GraphicWorks	1.13	NCP	MacSpool	3.0	NCP//	Scoop	1.01	NCP//
ClickArt Effects	1.01	NCP//	Handwriting Analyst	1.2	NCP//	MacTerminal	2.2	NCP	Scrapbook	174K	NCP//
Clipper	1.01	NCP	Hard Disk 20	1.1	NCP	MacTools (MFS/HFS)	7.1	NCP	SideKick	2.0	NCP
CloseView	1.0	NCP	Hard Disk Utility	2.0	NCP	MacWrite	5.0	NCP//	Silicon Press	1.1	NCP
Cognate	1.5	NCP//	HD Backup	1.1	NCP	Mac Zap	5.0	NCP//	Slide Show Magician	1.3	CP
ColorChart	1.3	NCP	HD SC Setup Apple	2.0	NCP	MailManager	1.0	CP	Smartcom II	3.0A	NCP//
Colorizer	1.1	NCP//	HFS Backup	1.1	NCP	Map	1.1	NCP	SmartScrap & The		
ColorMate	2.1	NCP	HFS Locator Plus	2.0	NCP	MapMaker	3.0	NCP//	Clipper	1.03	NCP//
ColorPrint	2.03	NCP	HyperCard	1.2.1	NCP//	Navis Beacon Teaches			Sound	3.3	NCP//
Comic Strip Factory	1.6	NCP//	HyperDA	1.1	NCP//	Typing!	1.2	NCP//	SoundCap	4.4	CP
Comic Works	1.0	NCP//	Illustrator	1.0	CP/NCP//	MDA	2.0	NCP//	Space Edit	2.0	CP//
Comment	2.0	NCP//	ImageWriter	2.7	NCP	MDS	2.0	NCP	SpellNow	1.0	NCP
ConcertWare +	4.0	NCP//	ImageWriter, AppleTalk	2.7	NCP	Measure Test	12.7	CP/S//	SpellsWell	2.0f	NCP//
ConcertWare + MIDI	4.0	NCP//	InBox	3.0	NCP//	MenuFonts 2	2.0	NCP//	Startup Device	3.3	NCP//
Control Panel	3.3	NCP	Insight Expert			Megamax C	3.0	NCP	StatView 512+	1.1	NCP
Copy II Mac	7.1	NCP	Accounting	2.01	NCP//	MGMStation	2.0	NCP//	StatWorks	1.2	NCP//
Copy II HD	7.1	NCP	Installer	2.6	NCP	MicroPhone	1.1	NCP//	Stella	1.3	CP//
Cricket Draw	1.1	NCP//	inTalk	3.0	NCP//	Micro Planner Plus	6.0	NCP//	Stepping Out I	1.3	NCP
Cricket Graph	1.2	NCP	Jam Session	1.1	CP//	MindWrite	2.0	NCP//	Stepping Out II	2.0	NCP//
Curator	1.04	NCP//	Jazz	1A	CP	miniWriter	1.4	NCP/S	Straight Talk	2.08	NCP//
DA Handler	6.0	NCP	JustText	1.1	NCP	MockPackage +	4.3.4	NCP/S	Studio Session	1.4	CP
Deluxe Music Construction Set	2.0	CP	Keyboard	3.3	NCP	MORE	II	NCP//	Suitcase	1.2.1	NCP//
Design/IDEF	1.1	NCP//	Key Layout	2.3	NCP//	Mouse	3.3	NCP	SuperGlue	1.03	NCP//
DesignScope	1.14	NCP//	Laser Author	1.3	NCP//	MPW	2.0b	NCP	SuperPaint	1.00	NCP//
DeskLink	2.0	NCP//	Laser Prep	5.2	NCP	MS BASIC	3.0	NCP	Switcher	5.1	NCP
Disk Express	1.10	NCP	LaserShare	1.0	NCP	MS BASIC Compiler	1.0	NCP	Systat	3.2	NCP
Disk First Aid	1.4	NCP	LaserSpeed	1.6	NCP//	MS Fortran	2.2	NCP	System (MFS-128K)	2.0	NCP
DiskFit	1.4	NCP//	LaserStatus	2.0	NCP	MS Works	1.1	NCP//	System (HFS)	6.0	NCP
DiskInfo	1.45	NCP/S	LaserWriter	5.2	NCP	MultiFinder	6.0	NCP//	Telescope	1.0	NCP//
Disk Ranger	3.1	NCP	Laser Writer IISC	1.1	NCP	Multiplan	1.11	NCP//	Telescope Pro VT 100	1.1	NCP
Disk Tools Plus	1.01	NCP//	Layout	1.3	NCP/S	MusicWorks	1.1	CP	Tempo	1.2	NCP
DiskTop	3.0.2	NCP//	Legal Billing	1.72	NCP//	myDiskLabeler	2.11	NCP//	Textures	1/01	NCP//
Dollars & Sense	4.0	NCP//	Legal Billing II	2.39	NCP//	'Ncryptor	2.0	NCP//	Think 'n Time	2.0	NCP//
Double Helix II	r40	NCP//	LightSpeedC	3.0	NCP//	Neon	2.0	NCP	ThinkTank	2.0	NCP//
"Draw It Again, Sam"	2.04	NCP//	LightSpeed Pascal	2.0	NCP//	NightWatch	1.02	NCP//	Thunder!	1.0.1	NCP
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Easy3D	1.01	NCP	Lode Runner	1.0	CP	OverVue	2.1e	NCP//	TML Pascal	2.01	NCP
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Excel	1.5	NCP//	Mac3D	2.1	NCP//	PageMaker	3.0	NCP//	Top Desk	3.0	CP
ExperCommon Lisp	2.2	NCP	MacASM	1.2	NCP	Parameter Manager			TOPS	2.0	NCP//
ExperLisp	1.5	NCP//	MacBillboard	4.01	NCP/S	Plus	2.2	NCP//	Trapeze	2.1	NCP//
ExperLogo	1.1	NCP	Mac C	5.0	NCP//	Performer	2.31	CP	Turbo Download	2.1	NCP//
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Thank You.

To all that visited our booth at the Boston Macworld Expo. The support that Jasmine received was phenomenal. We appreciate the time you took to talk with us.

When asked to vote for the best products, you reinforced our confidences by awarding us the Macworld World Class Award in both of the categories in which we competed. We also received the MacUser Eddy Award in January.

Our customers are fundamental to our success. Your satisfaction is our #1 concern. You proved that all our efforts are worthwhile. Our dedication to bringing you the most advanced technology at the most competitive prices will continue. That's our promise.

Thank you again for your continued support. We look forward to seeing you in January at Macworld San Francisco, right here in our own backyard.



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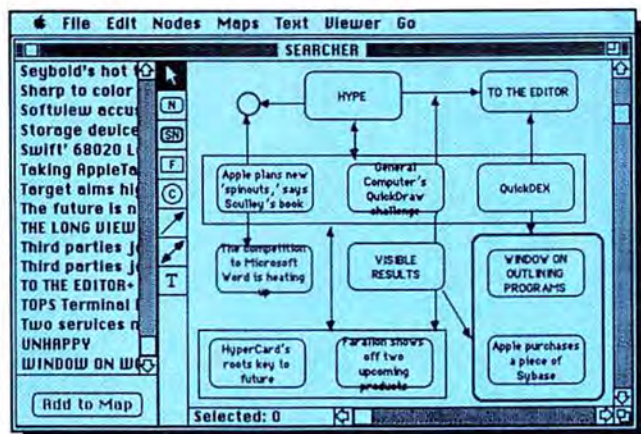
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— Russell Ito

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OmniPage works directly with the new Apple scanner and Hewlett-Packard's DeskScan. Since it opens TIFF files, it can also be used with virtually any other scanner. The system requires a whopping 4 megabytes of RAM on a Mac II or an SE equipped with a 68020 accelerator board. (OmniPage is also available as a \$1,995 add-in card for the IBM-PC.) The Mac version of OmniPage sells for \$795. Contact Caere at 100 Cooper Court, Los Gatos, CA 95030; (408) 395-7000.

— Ben Templin

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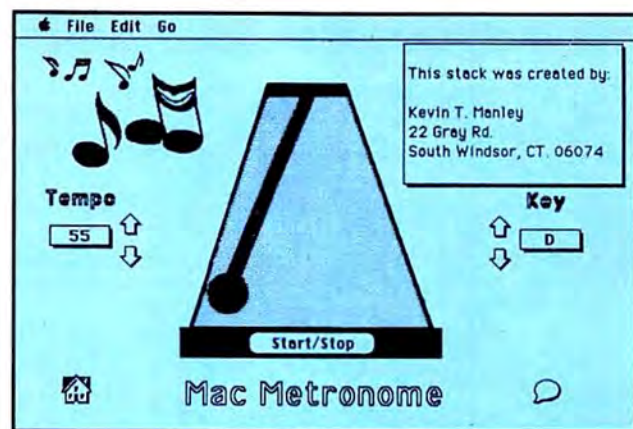
They take a licking but keep on ticking. Mac metronomes, that is. A couple of ambitious readers have responded to Elizabeth Holm's plea (in the August '88 issue) for a musical timepiece. Sam Clarke sent us his hyperGnome stack, noting that "there were a few anxious moments trying to get from a beep to an adjustable tone, and a nightmare building in an adjustable delay loop while keeping the tones evenly spaced but it's all in there." Ms. Holm now has a copy, and you can get yourself one by sending \$15 (or \$10, an initialized disk, and a properly stamped self-addressed envelope) to Sam at 526 Cedar Village Drive, York, PA 17402.

Kevin Manley of South Windsor, CT, sent us his Mac Metronome stack that he hopes will help others learn "the rhythm method." He adds that "I think Ms. Holm will agree that this idea deserves more than a measly \$25. How about a nice, shiny Mac II?

You must have a few extras hanging around."

Kevin may call it measly, but "that \$25 carrot you dangled" was enough to get J. Michael Rowland to submit an idea for an application. "You're unsure about the spelling or the meaning of a word, so you look it up. But there's one more thing you have to nail down before you can start using the word in intelligent company: You have to know how it's pronounced. Which syl-la-ble does that pesky stress go with, anyway?"

That's a fairly tall order — not exactly a weekend project. In fact, there are a couple of pronouncing dictionaries in the works that require the might of CD-ROM to hold all the information. But J. Michael has some thoughts on how it could be done. Using MacInTalk, you could add spoken phonemes to a MacWrite or Word dictionary. "You could start a HyperCard stack circulating, and people could add their own words, with



The beat goes on. Mac Metronome was one of two responses to Elizabeth Holm's plea for a musical timepiece. Don't be fooled by this screen; you can go faster than 55.

regional pronunciations, like the New England version of the American Heritage Dictionary, the New Old South Webster's, or the Good Ol' Boys Pernouncin' Dictionary, which would be really compact, since it could get along with half the consonants and only one vowel." We should add that J. Michael is entitled to say such things, being a good ol' Nashville boy himself.

Inventions, so it's said, are 1 percent inspiration and 99 percent perspiration. If you've got the 1 percent and want to let someone else do the 99 percent, send your idea to ANBA, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. If we publish your idea for all the world to steal ... er, see, you'll get \$25 as inspiration compensation.

— Jon Zilber

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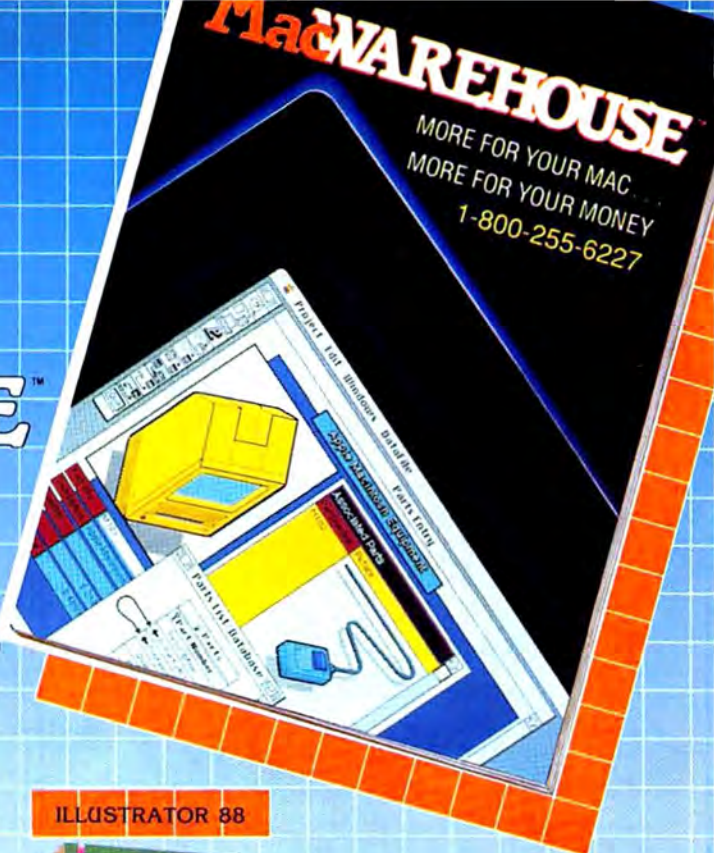
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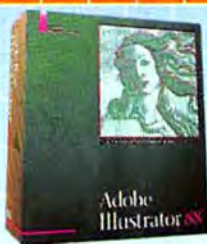
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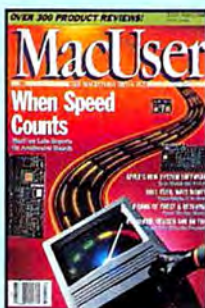
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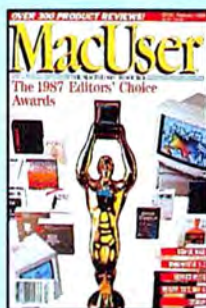
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February '88—The 1987 Editor's Choice Awards; dBase Mac; Mindwrite 1.1 adds more power; Ready, Set, Go! 4 will take over Pagemaker?; Reflex Plus; Scoop; ImageMaker's 35mm slide capabilities; picking a compiler; two modem-sharing solutions; Oriental graphics with MacCalligraphy; and more.



January '88—QuickKeys: using the mouse as an accessory. Plus: Why Canvas wins out over LaserPaint; MacSmarts and Instant Expert compared; Hypertext in 512K; Hypercard programming tutorial; Desktop Express e-mail; Macintosh Programmer's Workshop examined, Part I; making Postscript special effects work; and more.



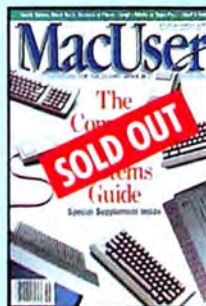
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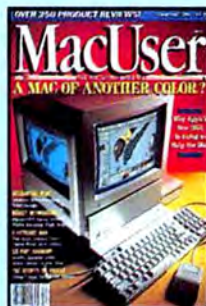
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September '87—Special Supplement: "The Complete MacUser Systems Guide" includes guide to configurations, systems guide directory, and more. Plus: Xpress; Doug Clapp's Word Tools; Douglas Adams on Word 3.0; GraphicWorks 1.1 and SuperPaint compared; recycling ImageWriter ribbons; and more.



March '87—Special section on new word processors reviews Laser Author, MindWrite, Word Handler, Word 3.0 and WriteNow; MacIntax tax preparation software; 5 time-saving printer buffers compared; 5 AI languages reviewed; Mac Pro Football; FREE program in Softstrip format; and more.



December '86—Why Apple's new IIGS is going to help the Macintosh; Accounting Plus; PhoneNET saves money without sacrificing quality; inBOX E-mail system; Studio Session adds more voices to the Mac; Doug Clapp on the secrets of Pascal; StatView 512+; Compiled ZBASIS; FREE programs in Softstrip format; and more.

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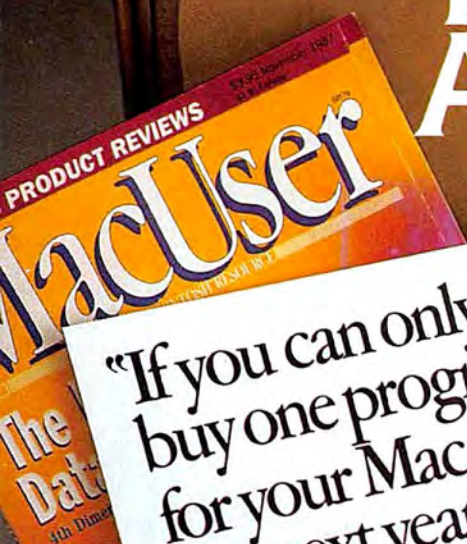
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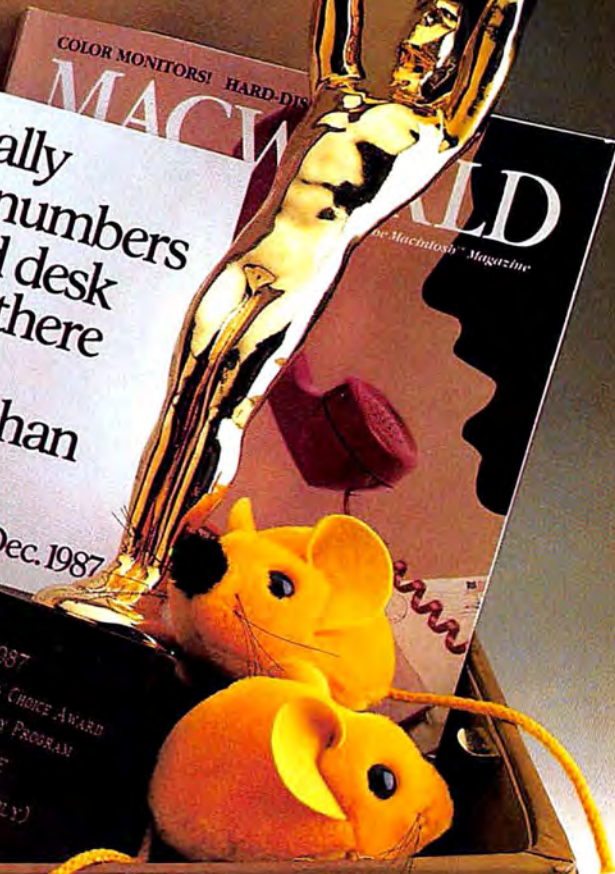


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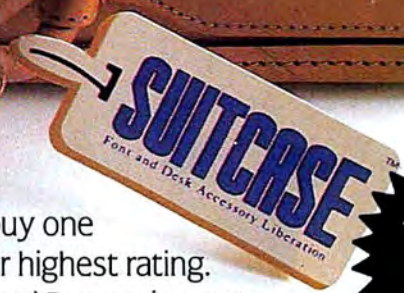
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by Neil L. Shapiro

This Will Teach Him

It doesn't take much to be my friend. In fact, I'm usually desperate for friends (if you had my personality, you would be, too). Take the other day when one of my best personal friends mentioned this column in an offhand manner.

"Oh, yeah," he said, "I don't like it so much. You spend too much time on games."

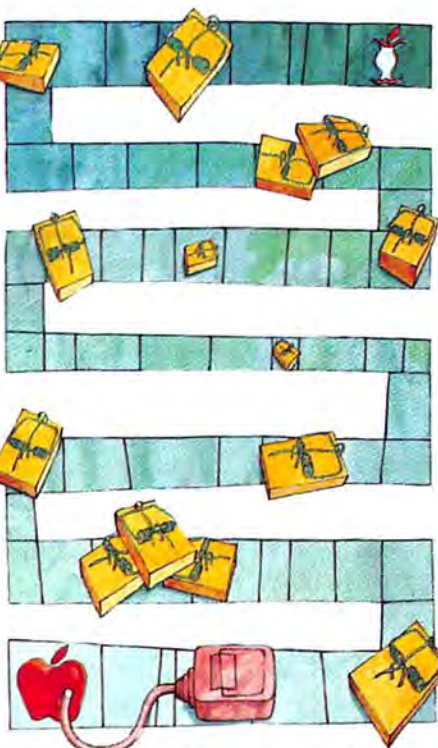
That had the effect of reminding me that it's actually been a very long time since I last mentioned the state of the Macintosh gaming market and that it's about time that I did so again. So, if you're like my good friend, who is a lovely person but who thinks spreadsheets are the only allowable kind of computer fun for an adult, turn the page to Wiggins' column. It's usually very good, and he won't ever embarrass you with anything unbusinesslike. On the other hand, if you agree with me that gaming is not only fun but also important to the development of the Macintosh computer, then read on.

Still here? Good! We got rid of all the "suits" who forgot where their funny-slogan T-shirts were stashed.

First, I want to report that the state of gaming on the Macintosh, in many ways, is better than ever. There are more games out, more choices, more Mac II games. On the other hand, several problems show that a minority of game designers still are not "up" on the Mac.

Smaller companies continue to push the Macintosh's CPU to its limit, far past what the typical spreadsheet or database demands of the Mac's silicon brain. They really can make the machine sit up and entertain you.

Case in point is the new version of *Crystal Quest* from Greene, Inc. Anyone who has played the first version of this arcade game knows that the mouse really can be as nifty to use as a



joystick, if the designer knows how using a mouse feels. The new version of the game, which should be out by the time you read this, includes even better digitized sound effects. But the real fun is the new construction-set editor program. Here you can change the look of the baddies to suit your own warped vision. Want to shoot your boss out of the sky? Or, want to make a Khadaffy monster (well, actually, what could you do that wouldn't really be flattering)? Beautiful full color on the Mac II and the new version works well with MultiFinder. This game proves that the Mac II can, indeed, be a fun computer!

A PERFECT PORT

Reach for the Stars is one of my favorite games these days. It's a favorite not only for the play value but because it's an inspiration to see how the programmers at SSG (Strategic Stud-

ies Group) have ported the game to the Macintosh from other computer systems.

Porting is a difficult process. One way to port, or move, a game is to use the old version as a "spec" and simply reprogram the software. But then you risk the horror of winding up with a game on one computer that has the flavor of that on another computer system, particularly when it comes to the Mac.

The only sure way to handle this situation is to sit down and ask, "How can this game be better on the Macintosh than on any other computer?" If the game on the Mac II is not better than the same game on the Atari, then the question is: Was this trip necessary?

Reach for the Stars is far, far better on both the Mac and the Mac II than it is on any other computer system (and I have played it on many others). Why? Because it uses the Mac interface well.

All of the many game screens, from star maps to lists of fleets, come up in their own windows. You can even drag various windows, on a Mac II, from monitor to monitor with full support of color.

The game, a very complex simulation of running a galactic empire against as many as four human and/or computer opponents, is a difficult one to learn and, on some computers, even more difficult to play. The beauty of the Mac interface, in the hands of skilled Mac programmers, is that the complex becomes intuitive. Nowhere can this axiom be demonstrated better than in simulation-type computer games such as this one.

Other software designers, such as Origin Systems, are continuing their ongoing Mac efforts in new and exciting ways. Take, for example, the game of *Moebius*.

The people at Origin totally revamped Moebius for mouse control as well as redoing the graphics for the Mac and Mac II (color even). The game now features a combat system that will probably just blow most gamers away. The on-screen combatants appear in 3-D as very large figures at the top of the screen. Below the combat field is a mousable control panel. Players control all actions, kicks, sword thrusts, parries, and lunges of their on-screen personae by clicking quickly from icon to icon — or by clicking around the moving figures.

This game is the closest thing I have ever seen on a computer to Japanese *anime*-style animated cartoons — and they are fully interactive! Although the game itself has some problems (I, for one, have never been able to figure out how to win or even survive very long), it has no problems at all with being “Mac’y” enough.

Anyone with a Mac or Mac II will want to see this product. The next time you’re on the phone to a company whose business products draw a simple graph fairly slowly, you can laugh out loud when they try to tell you how difficult animation is on the Macintosh! Games push frontiers further and further forward. By knowing games, you know where the frontiers are.

PORTED PROBLEMS

On the other hand, not all ports have been completely successful. Without meaning to pick on Sierra OnLine, I must say that neither the Mac versions of its King’s Quest games nor its new Police Quest game impress me very much at all. The problem is that its programmers asked not what they could do for the Mac but simply what the Mac could do for them.

They only moved IBM PC graphics to the Macintosh, with fairly pitiful results. In King’s Quest III, the graphics are muddled, stair-stepped, miscolored, awkward, and totally laughable to anyone who has ever seen PixelPaint pictures. Set your Mac II to the 16-color mode or boot up your Mac Plus. On the first, you have an oversize IBM CGA graphics screen. On the second, you have CGA graphics in gray tones. Ick.

This is particularly displeasing when you consider that the Apple IIGS version of King’s Quest III is little short of mouthwateringly spectacular. Why should the Apple IIGS version

Games

push frontiers further and further forward. By knowing games, you know where the frontiers are.

look better than the same game on the Mac II? No reason except that the programmers did not do what the programmers of Reach for the Stars did. They did not ask themselves how they could make this game *better* because it was on the Macintosh. They simply picked up an IBM disk and thought, “Wouldn’t it be nice to sell this on the Mac!”

That attitude will no longer wash. It won’t work in the gaming market. It won’t work in the business market. It won’t work in desktop publishing.

If you come out with a Macintosh version of an existing IBM PC program, you’d better be sure that the Mac version beats the IBM version all hollow. If it doesn’t, rest assured that it won’t be able to compete against real Macintosh products in the niche you’re aiming for.

Then there are some companies who appear to be dropping out of the gaming market, to our collective loss. For example, the new Beyond Dark Castle from Silicon Beach software appears to be that company’s swan song to gamers. CEO Charlie Jackson has said on the computer networks that Silicon Beach will devote its time now strictly to business software, as that area appears to be more remunerative.

I don’t know what Charlie’s behind-the-scenes reasons might be, but I have my suspicions. How about making sure that if you have BDC, you’ve paid for it? If you somehow have a copy you

haven’t paid for, go to a store and buy a street-legal copy. If you love games and you love gaming, please don’t cut off your wallet to spite your soul.

Brand-new companies continue to appear. I just saw Fire-Brigade from Panther Games (of Australia, no less, but soon to be distributed in this country directly). This game brings very advanced forms of computer war gaming to the Macintosh and Mac II. You can fight the 1943 Battle of Kiev, complete with mouse control of all forces! Unlike the war games that presently exist on the Macintosh, this one is not for beginners or intermediates. It’s a full-featured, brain-numbing, scream-at-the-screen, scratch your head, super-advanced “monster game.” You can worry about armor, antitank guns, engineers, field artillery, heavy artillery, rockets, air/ground support, combat effectiveness and morale, formation frontage, supply logistics, bridges, and fatigue. You can even play over RS-232 or modem with a friend if the computer beats you too often. I don’t know quite when you will see this one, but it’s worth waiting for!

Simultaneously the shareware market in games continues to grow. Although at least one columnist has come out against shareware, it is still a burgeoning field and a way to try to “make it” on your own. Yes, the odds are very much against your hitting it big. Yes only a small percentage of people actually pay for the game.

On the other hand, it’s a way to become known to the community so that when you do approach a publisher, you have a base from which to bargain. And, there’s always a chance that it will indeed bring in some bucks. So although it certainly makes sense to investigate publishing a game with a “real” company, shareware is for many people still a very handy option to have and will continue as such for a good long while. So, in many ways, the gaming market for the Macintosh is better and livelier than ever. And that’s good, extremely good. Because as more games are programmed on the Macintosh, more powerful methods of programming will be invented.

And that will be good for business. ☞

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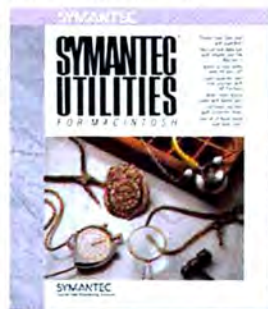
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by Steven Bobker

The Price of Freedom

Now that HyperCard really is System software, we can ask a question that wasn't askable or answerable a year ago. Would HyperCard have been a success if it had cost a reasonable amount of money?

Before we get to the socioeconomics, let's look at some history. About 20 months ago, insiders started to get a good feel for WildCard, the project Bill Atkinson had been working on for several years. (Of course, the *inside* insiders knew all about it well before that. For example, as early as September 1986, Danny Goodman was well into the manuscript that was to become *The Complete HyperCard Handbook*.) As the release date drew nearer, the product was renamed HyperCard and there was much speculation about its eventual distribution. Would it be bundled, sold, or just given away? Rumor had it that Atkinson was holding out for free distribution and had said he would leave Apple if they didn't freely distribute HyperCard.

Whatever the truth there, Apple decided to label HyperCard as System software. That way they could have the best of all worlds. They could give copies out, since it wasn't a productivity application competing with third-party developers' productivity applications. (Alan Boyd, then with Owl International — the publishers of the Guide hypertext application — had some interesting things to say about that point of view.) They could, and still do, bundle copies with new Macs. And they could sell it as a low-cost upgrade just the way they were then planning to handle the System software updates.

HyperCard was released on August 11, 1987, the first day of the Boston Macworld Expo. Within a week, there were at least 10,000 copies in the



hands of users. Within a month, there were probably 35,000 copies out there (and this doesn't even count the copies friends copied for friends). That's a huge number of copies for a Mac program. Danny Goodman's book, released simultaneously with the product, became the unofficial manual and official best-selling Mac book in history. By now it's safe to say that virtually everyone who wants a copy of HyperCard and who has at least a Mac Plus has a copy of HyperCard. That means that there are an enormous number of copies out there today.

However, there's a difference, and in this case, a big difference, in the number of copies distributed and the number of copies being used. The number of people using the program is large but is still a fairly low percent of the number of copies distributed. And the number of people using HyperCard on a regular basis (at least an hour or two daily) is even smaller.

No program is so good or so vital

(with the exception of some System software that is, in fact, vital) that all the distributed copies get used. (That's true of hardware as well as software — there are probably more Commodore 64s sitting in closets than in use today.) And if the program can be obtained at no cost, then there's no penalty (but loss of your time) in trying it out. (Wouldn't it be great if you could try out all software at no cost, before committing your bucks to it?)

I'd guess that everyone who has at least the required 1 megabyte of RAM has run HyperCard. In that sense, Apple's free distribution has made HyperCard a success. And despite the fact that it's labeled System software, you don't *have* to run HyperCard; your Mac will work perfectly well without it. Given its elective status, I'm impressed that so many people have given HyperCard an extended trial. That's another mark of a successful program.

Let's go back to the previous question: How many people use HyperCard, and how many use it regularly? It's a toughie, but the answer is clear: an awful lot. However, regular usage no longer appears to be going up as fast as Mac sales (which offer a very rough, but also conservative, cut on the number of copies of HyperCard distributed). Why? Well, the hard core, the users waiting for the simple programming language, joined up with a rush. That corner of the market will grow but won't surge as it did this past year. And some folks have found that the current versions of HyperCard just aren't powerful enough for what they want to do. And for others, HyperCard was a novelty, and that novelty is wearing off. And finally, the truly great HyperCard application has yet to be written. There's no Excel, PageMaker, or Dark Castle for HyperCard. Yet. When the great application (or better

yet, applications) appears, usage rates will go up. Think back to the days when there was little Mac software available.

That's not to say that there isn't a lot of HyperCard software available. There is. It's just that a lot of it isn't great. Given what looked like an instant user base, lots of people announced their entry into the stackware market. That's another story entirely (and one that I commented on in this space last month). These publishers would have been far less eager if the user base hadn't been guaranteed. A tiny-percent market share of a small market won't pay the rent, but the same market share of a huge (and guaranteed-to-grow) market will make you rich. And there have been some successes, where small publishers filled niches before the dinosaur-like larger competitors could react. The most notable example is HyperPress of Foster City, CA. If HyperCard hadn't been free, these folks would probably be struggling consultants today.

In fact, it's the consultants who have benefited most from the price (or lack thereof) of HyperCard. Apple established a market and a need, and — given that they weren't making any real money distributing the product — they had to leave support to others.

HyperCard is a good program. It's easy to use and has considerable power. It probably would have been a success even if sold by Claris (like most other formerly Apple-labeled software) for, say, \$99.95 or even \$149.95. There wouldn't be as much commercial stackware available, but, since HyperCard does include the relatively simple HyperTalk programming language, the amount of public-domain and shareware software would still be large.

For now, let's say the promise is being fulfilled, but in ways that were not predicted a year ago. And that the free distribution was not a bad idea, nor did it seriously skew the Mac software market. It appears to have simply expanded it, in directions that might otherwise have remained empty. And this niche could really blossom as soon as a great HyperCard application appears.

Extra large
was most popular, followed
closely by large.

Bravo, Apple, for doing HyperCard the way you did.

RAM SHORTAGE SIMMERS

The RAM shortage is not abating. One-megabyte SIMMs look to remain very expensive and in short supply. The prognosticators who, 60 days ago, were assuring us that all would be copacetic by year's end aren't so sure anymore. In fact, when you can get someone to comment, often as not they'll say they have no idea when the shortage is going to end. The Japanese have no real incentive to end it, nor does IBM, which is the only U.S. company that makes the SIMMs used in their own machines. Only consumers (and by that I mean both computer companies like Apple and users like you) would gain. So why should the SIMM shortage go away? There's really no reason, until a new technology replaces SIMMs (which are themselves a fairly new technology).

This morning, my local paper had an ad from Fry's Electronic Supermarket (in Sunnyvale) that offered 120-ns, 9-chip, 1-megabyte SIMMs for a mere \$549 each. If you want four of them (to take your SE from 1 meg to 4 megs or your II from 1 meg to 5 megs), that will cost you a not-cheap \$2,196, plus \$153.72 in sales tax. But, on most days, you can walk in and get them. I've seen mail-order prices of \$375 to \$400 per SIMM.

And there's a booming market in "hot" chips at the moment. I was recently in the McGraw-Hill Computer Store (an excellent Manhattan Mac dealer) when the manager got a call offering her SIMMs, cheap, but no questions asked and it had to be cash. You won't be able to buy those particular SIMMs there, but sooner or later the seller will find a buyer.

The SIMM shortage is already affecting Apple's plans for introducing new machines. And it's going to mean higher prices eventually for all buyers. A recent example of what is going to happen to all of us is Digital's announcement that all systems using DRAMs (the type of memory used in SIMMs and currently in shortest supply) will be increased in price by approximately 3.5 percent. And the price of their add-on memory products will increase 35 percent!

RELIABILITY

The T-shirt offer is over. I offered shirts to anyone who had a hard disk in regular daily use that had not failed or crashed with data loss within the last year. I wasn't sure what would happen.

Hard disks are pretty reliable, and only 48 of you claimed T-shirts. Some of the stories were really impressive. Here's an example: Henry B. Matthes of San Francisco was moving his SuperMac DataFrame 20XP one day when he tripped and the drive went flying. It landed with a crash about 10 feet away. And aside from a bent SCSI connector, it worked fine when plugged back in (Henry didn't say if the paint on the case was damaged). No data was lost. That points out the value of automatic head parking. (By the way, please don't try that particular test with your hard disk.)

One demographic fact must be reported: No one requested a small T-shirt and very few people wanted medium. Extra large was most popular, followed closely by large. Several folks requested larger than extra large if that was possible (it wasn't — how big do you think we are?).

And before you jump to any conclusions of chauvinism, I have to tell you that the request split nearly evenly over gender, with as many women requesting extra large as men.

LOCAL UPDATES

A glitch removed a few important words from my August column. The third paragraph on page 35, the one that starts "Unfortunately,..." ends with a quote from a letter by Ray Lau. That quote should begin, "This is from the April 19, 1988 issue of *Macintosh*

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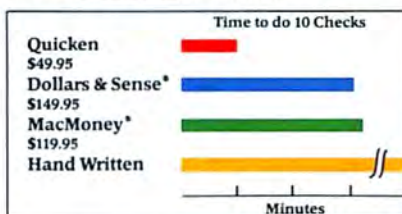
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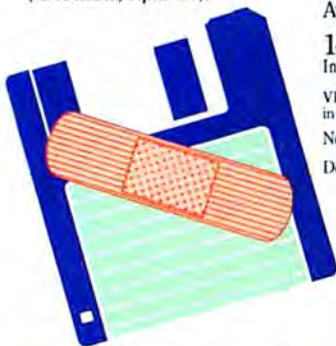
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THE OPEN WINDOW

Today, page 44: 'Reeves said....' " When I read what was actually printed, even I didn't understand what was meant. Sorry about that.

In a more positive vein, Paul Friedman of Friedman Computing and Publishing in Sarasota, Florida has added to my anti-virus reward offer. He's offering a copy of his product, HyperLibrary 2.0, to the pool. If you already have a copy, you can get a check for the full retail value of the product. Thanks, Paul.

IF YOU REALLY MUST

Manuals and Macintoshes don't mix. That's the conventional wisdom. You can write them, but no one is going to read them. And many of you, having glanced at the slick but not very informative Apple-produced manuals, have had no part of any manuals ever since.

Still, you might remember a red book written by Cary Lu and published by Microsoft Press. It was called, with some understatement, *The Apple Macintosh Book*, and leaving aside the immodesty of the title, it was the best of its kind. Eventually a purple-covered second edition appeared and was equally good. It remained the one Mac book that you kept handy (programmers, of course, still required *Inside Macintosh*, all five — at this writing — volumes).

It's been over a year since the SE and II appeared and, finally, the third edition of *The Apple Macintosh Book* has appeared. Still about the same size as the first two editions, but sporting a slate blue-gray cover this time, it has been totally reworked by Lu and Ellen Chu (who is mentioned on the title page and elsewhere, but not on the cover). And it's still the Mac book of choice. It's packed with lots of basic knowledge and never hesitates to go beyond the obvious. This tool will help you get a lot more from your Macintosh.

THAT'S ALL, FOLKS

This will be my last regular column for *MacUser*. It's time to move on to other things. *MacUser* has been great fun, and I hope my work here gave you as much pleasure as it gave me. ☞

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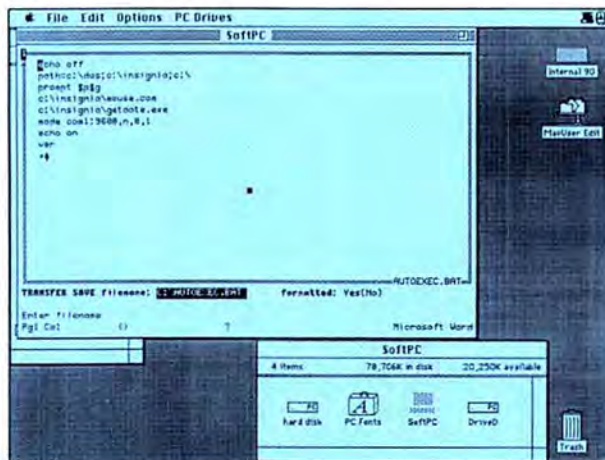
SYSTEM SOFTWARE

SoftPC

SoftPC puts an IBM PC/XT inside your Mac without cracking the case to add any special coprocessor boards. With SoftPC you can run MS-DOS programs on a Macintosh II and some accelerated Mac SEs. The emulation of a PC/XT computer is done entirely in the software.

SoftPC goes a step beyond file transfer between a PC and a Macintosh — it executes PC programs on your Mac as if you were using an MS-DOS machine. SoftPC needs a minimum system configuration of 2 megabytes of memory. The full-sized version runs 10 percent to 15 percent faster and requires at least 4 megabytes of memory.

On a Mac II equipped with an Apple or SuperMac Spectrum color card (or equivalent) and a color monitor, SoftPC creates a window that emulates a PC's Color Graphics Adapter (CGA) screen. Color is not required, but it enhances the appeal of many PC programs. Outside the window, the Mac is unchanged; with a simple menu



SoftPC brings an MS-DOS environment to the Mac without adding any special coprocessor boards. It's all done through the software.

toggle, you can switch from PC to Macintosh mouse operations.

Some operation glitches mar an otherwise well-designed program. For instance, after you quit SoftPC, the color on your desktop goes to gray. The only way you can restore the color is to reboot the system. To be fair, SoftPC is not the only program that doesn't handle the Mac II's screen buffer well.

Any software that runs on an IBM PC/XT with 640K of memory, including RAM-resident packages such as SideKick, can be run on SoftPC. SoftPC recognizes one floppy disk drive and up to three hard-disk drives (or disk partitions). SoftPC also emulates the Microsoft bus mouse and three ports (two serial, COM1 and COM2; and one parallel, LPT1).

SoftPC's greatest use might be in getting Macs in the door at corporations and government agencies with strict purchasing requirements. If your company requires that all hardware must run PC software, you can use SoftPC to sneak your Mac past that policy. In addition, for a department where computers must be shared, PC users can now use the Mac if no DOS machine is available.

One of the most likely applications for SoftPC is to make your Mac look

like another PC on a network. If, for example, the PCs are tied to a mini or a mainframe through a terminal-emulator program that runs only on a PC, SoftPC enables you to run the same program and connect without a hitch.

SoftPC installs with a simulated hard drive (C:) of only 1 megabyte. Larger hard disks are created by a sim-

The 5-Mouse Rating

★★★★★	EXCELLENT
★★★★	VERY GOOD
★★★	GOOD
★★	FAIR
★	POOR
0	DOESN'T WORK

Quick Clicks are short reviews of released products — not beta release, prerelease, or vaporware. If it appears here, it is available commercially.

SoftPC



SoftPC

List Price: \$595

Published by: Insignia Solutions, Inc., 1255 Post Street, Suite 625, San Francisco, CA 94109; (408) 446-4992, (800) 848-7677.

Version: 1.2

Requires: Mac II or SE equipped with 68020 accelerator card; 2 megabytes of RAM for the small version; 4 megabytes for the standard version.

Compatibility: Runs under MultiFinder if equipped with at least 5 megabytes of RAM.

Application Size: 2 megabytes, 924K; 4 megabytes, 1,132K.

Copy Protection: None.

I KNOW THAT REPORT IS IN HERE SOMEWHERE.

ple process. A second disk (D) can be configured through a pull-down menu. Copying files and renaming disks produces both a C and D disk of up to 30 megabytes (a DOS limitation) each. Drives C and D are single Mac files that contain a bit image of a DOS disk. E is a portal through which the DOS software program can access a Mac folder.

It's difficult
to imagine why a Mac
user would run PC
applications.

There are many ways to import PC software and files into the Mac for use under SoftPC. The quickest and least expensive way is directly by serial cable. Running on a real PC, SlavePC (included on a 5.25-inch disk) enables SoftPC to control the true PC's disk drive by a serial cable. SlavePC is especially useful for dealing with software that must install directly from the A drive onto a hard disk.

It's ironic that while SoftPC ostensibly eliminates the need for a PC to run PC software, you still need one close enough to connect a serial cable to import files or read floppy disks. However, both Apple Computer and Dayna Communications make disk drives that can read PC disks. If you think you'll need to swap files with the PC fairly often, this is probably the way to go.

If you'd like to access the company's database, see what your client sees on her screen, or capture a PC screen to plop into your Mac document, SoftPC is an excellent solution. Otherwise, it is difficult to imagine why a Mac user would want to run PC applications. Programs such as Microsoft Word run on both the Mac and the PC and will automatically reformat documents that are sent through a modem to and from the two machines.

— Carolyn Meskell

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PERSONAL FINANCE

Quicken

Since the advent of the Apple II in 1977, software authors, publishers, and industry pundits-at-large have foretold the benefits of using a home accounting/budgeting program. Their claims have ranged from "better management of your money" to "a financial tool you can't live without."

More than a decade later, Macintosh users are no closer to this financial nirvana than their Apple II ancestors were. Most home budgeting/accounting programs are onerous to use, require a considerable time investment to run, and never give the user much more than a well-designed spreadsheet would. A program that finally breaks this mold is Quicken.

Quicken isn't an ordinary home budgeting/accounting system. In fact, its authors tell you that it's nothing more than a Macintosh-driven checkbook register and printer with a reporting capability. But that's why it's probably the best home budgeting/accounting system on the market.

In business, accountants track financial transactions and record them in ledgers. The ledgers are then summed together to form profit-and-loss statements and balance sheets. At home, even professional accountants don't keep ledgers; they use their checkbooks to keep track of their financial transactions.

Quicken's focus is just that — your checkbook. By tracking where you keep your money (checking, money market, or savings) and where you spend it (gasoline, household repair, medical expenses, and the like), Quicken can tell you quickly and accurately how much money you have and where you're spending it.

Here's the way it works. First you "write" your check using Quicken. Then, once you fill in the basic information — such as who the check is made payable to, the amount, and so forth — you tell Quicken what type of expense the check represents. The category you choose may be either one of Quicken's standard groups or one that

Quicken tracks your personal expenses as you write checks. Expenses are assigned to categories, which are then dumped to an electronic ledger. At the end of the year, tax information is collated automatically.

you create. From that point on, Quicken does everything for you.

This system automatically tracks each check. At the end of the year if you were to ask Quicken how much you paid in rent (through Quicken's Reports facility), the program would give you a detailed listing of all transactions in that category. You can also ask Quicken for a category report, which would generate your personal income statement from the income and expense categories you use. Information for Federal Income Tax Schedules A through E and Forms 1040 and 2106 is automatically captured.

Quicken is smart enough to automatically generate checks for recurring items like mortgages and car payments. Even though Quicken is smart, it's not clairvoyant. If you write checks outside of the program, you will have to take the time to sit down and record them through Quicken. If you're not willing to do this, then the value of the program is negligible. Recording checks written manually in Quicken is easy and fast.

Quicken can use clip-art images and print them on your checks as logos or designs. It can also extract information from the Quicken accounts and browse, print, or manipulate it through HyperCard stacks.

Quicken makes reconciling bank statements a snap. For this reason, as well as for its inherent flexibility, Quicken is a good choice for keeping track of the books of a small business. Quicken can handle accounts payable,

accounts receivable, and even payroll. Quicken produces Forms W-2, W-3, and Form 940 automatically. If Quicken's reports aren't enough for you, you can export data via a SYLK interface to Excel or other spreadsheets for further manipulation.

Quicken is a great program. So good in fact that I would even recommend it even if you used it only to record your checks, not print them. Its combination of an outstanding implementation of the Mac interface, sophisticated keyword-searching techniques, and a readable, well-designed manual make it the industry standard. Given its price of \$49.95, anyone who owns a Macintosh and has a checkbook should buy a copy.

— Ken Landis

Quicken



Quicken

List Price: \$49.95

Published by: Intuit, 540 University Avenue, Palo Alto, CA 94301; (415) 322-0573, (800) 624-8742. In CA, (800) 468-8481.

Version: 1.0

Requires: 512K, ImageWriter, LaserWriter, or other Mac-compatible printer.

Compatibility: Mac II and MultiFinder friendly.

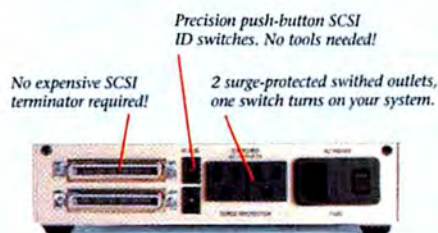
Application Size: 150K

Copy Protection: None

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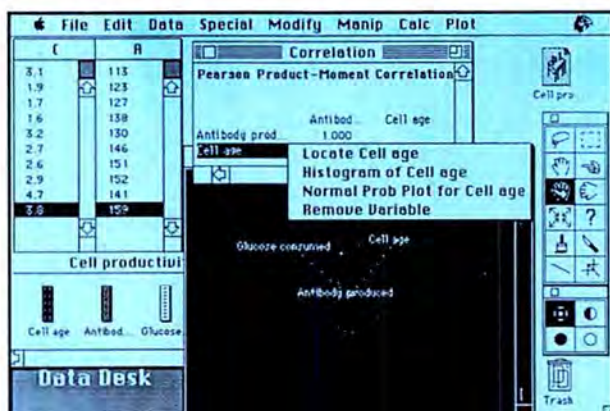
Data Desk Professional

The Mac deserves software with a graphic interface that guides you through your work, helps you think, entices you to explore, and makes relationships between pieces of information come alive. Data Desk Professional is just that kind of software. It doesn't leave you drowning in a sea of data. Instead, it displays information in ways that let you see patterns you might otherwise miss, and it even suggests what you can do next.

Data Desk Pro is a statistics program. It handles descriptive stats (like means, standard deviations, skewness, and frequencies), contingency tables, confidence interval tests (like t, z, and F), ranked correlations, regression, analysis of variance, cluster analysis, and more. Its feature list compares favorably with programs like StatView II. It's adept at sharing files from most other spreadsheets and databases, and it works particularly well with Double Helix II collections. After all, it's marketed by Odesta.

Quite a few things combine to make Data Desk Pro much more than just a statistics and plotting program, though. First of all, its interface is similar to that of Double Helix II. The program operates in a look-alike of the Finder. Each variable, plot, and group of items you work with has its own icon on the desktop. Data Desk Pro even has its own trash can. You can group items by putting them in their own bundle and then hide them until you need them again. The whole environment is immediately familiar to Mac users and makes the program feel very comfortable.

This interface isn't there just to look pretty — it takes some of the burden off you as you work. Tables and plots generally have pop-up menus (called HyperViews) attached to them. As you click and bring them up, HyperViews give you a list of alternative actions. For example, a menu at the bottom of a bar chart might suggest that



you also examine the data in a pie or frequency chart. Clicking on a row of a table might list the possibility of selecting just that column for further analysis. Just click on the suggestion and it's done.

Plotting in Data Desk Pro is fully three-dimensional. You select up to three variables from which to generate a plot, then use rotation and turning tools to view the data from any angle. Three-dimensional plotting is much more than a "wow" gimmick — it can give you information about how variables interact that you wouldn't see any other way.

Plotting isn't perfect, though. Each plot can have only one number series for each axis, so you can't overlay plots. However, you can place as many plots as you want on the screen at once, and as you change the data that underlies them, you can decide whether and when they are updated. This can be very handy for "what-iffing." Also, while plots can be printed on ImageWriters and LaserWriters, there isn't much room for customizing the look. You'll probably want to export them to a drawing program for touch-up if they're for publication or presentation. Odesta would do well to either work on a separate graphics module or integrate better drawing capabilities into the program. With the emphasis on presentation these days, it's not enough to only deliver good number crunching.

If you're no statistics expert but need to make some sense out of numbers anyway, keep the manuals nearby. I've rarely seen better documenta-

Data Desk Professional lets you view statistics with greater ease than any comparable Macintosh program. It plots variables so you can analyze data to discover patterns.

tion. Together, the Quickstart Guide, Handbook, and Statistics Guide form an excellent team. The Quickstart Guide shows you how to navigate through the program, the Handbook helps with the details, and the Statistics Guide discusses what's "under the hood," complete with references for further study. Examples are scattered liberally throughout all the manuals rather than residing in a separate tutorial booklet.

The choice between Data Desk Professional and its competition comes down to two things: features and interface. It rates well in both categories, with both a user interface that cuts training time and a feature list that is among the most complete available. You can find less expensive packages, but as the old adage says, you'll get what you pay for.

— Linda Custer

Data Desk Professional

★★★★½



Data Desk® Professional

List Price: \$495

Published by: Odesta Corporation,
4084 Commercial Avenue, Northbrook,
IL 60062; (312) 498-5615, (800) 323-5423.

Version: 2.0 r1

Requires: 1 megabyte and two 800K
disk drives or hard disk.

Compatibility: Mac II and MultiFinder
friendly.

Application Size: 474K

Copy Protection: None.

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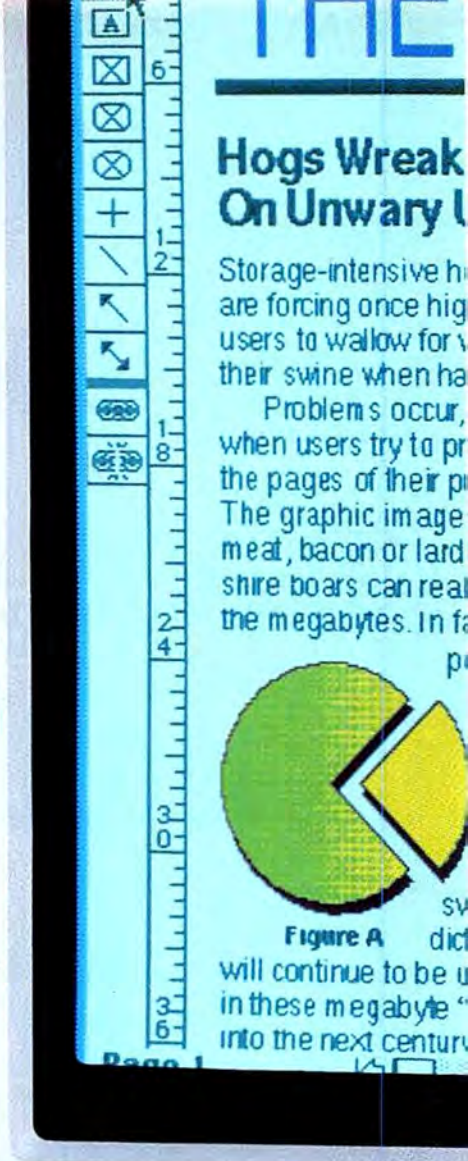
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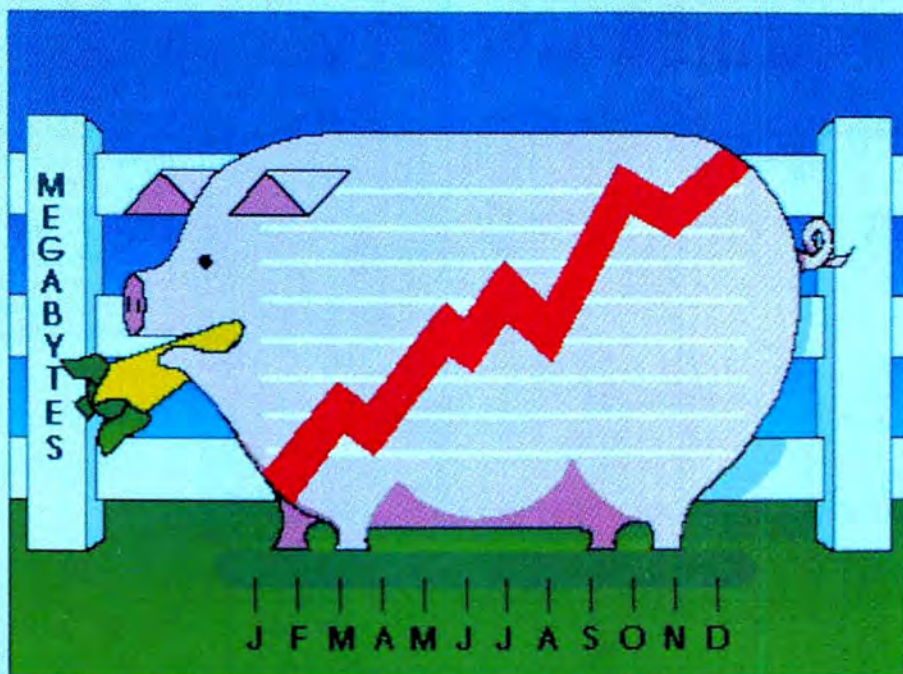
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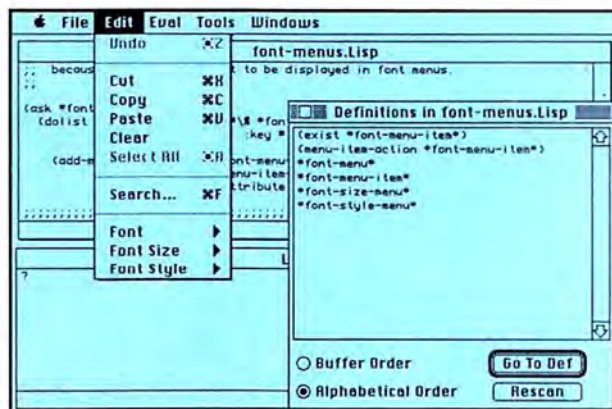
LANGUAGES

Allegro Common LISP

LISP is always a difficult subject to discuss. Variations of this second-oldest computer language are almost as prolific as guppies. Until the publication of Guy Steele Jr.'s Common LISP (Digital Press, 1984), any review of LISP invariably included comparisons with the diverse "standards" of MAC-LISP, Scheme, SPICELISP, ZETA-LISP, or many lesser-known implementations. With the advent of Common LISP, there is a baseline against which LISP can be judged. Allegro Common LISP is an attempt to paint a Macintosh expression on this landmark of over 800 documented functions. The result is one of the most exciting programming environments on a personal computer.

The first thing you notice about Coral Software's Allegro Common LISP is its size. At 772K it appears lonely as it consumes a complete 800K disk. But keeping the size of this program down to a single disk is a remarkable achievement. Included in that code is not only the language interpreter but also a complete EMACS-style editor, called FRED, which stands for FRED Resembles EMACS Deliberately. FRED will make most Macintosh developers comfortable, and its EMACS mode will make the most seasoned LISP hacker feel at home. This EMACS editor, like its dedicated counterparts, turns the development environment into a personal place where your programming quirks and preferences can become a reality. Included in the package is a sample set of LISP functions that put font control into the editor.

FRED contains the expected LISP development tools, like trace facilities, Apropos, inspect, and backtrace. Release 1.2 includes complete on-line documentation. The use of the kill-ring (an EMACS type of Clipboard) has been improved, so you can use cut or copy to move information to the



Allegro Common LISP's development environment is a full EMACS-style editor called FRED that implements most Common LISP editing and debugging functions.

Its EMACS mode will make the most seasoned LISP hacker feel at home.

Clipboard and to the kill-ring at the same time. EMACS commands that kill text won't affect the contents of the standard Clipboard.

LISP programmers write some of the largest and most complex software. This means that getting back to where you left off is a chore when you have to reload and reevaluate your code. Release 1.2 of Allegro relieves this problem with a Dumplisp command that quickly writes the contents of memory to a file for eventual reloading.

This Common LISP is not as Common as it may seem. Although it implements the Common LISP ideal, it doesn't stop there. Allegro Common LISP and other products from Coral, like foreign language interfaces and an application generator, make this a Macintosh development system as well. Allegro Common LISP has been extended to include high-level language functions for calling the Macintosh Toolbox routines. If you need more power, you can drop into a more direct interface that lets you get at

traps not included in the language itself. QuickDraw is also available for those who want to add a graphics flavor to this LISP banquet.

As an advocate of object-oriented languages, I was pleased with Object LISP. Although the documentation on this variant object system needs some work, the functions themselves create a wonderful place for developing object-oriented programs. All the Macintosh window and dialog-box facilities are created in objects. This Object LISP, however, is nonstandard and should be joined at some point by Common LISP Object System (CLOS). Object LISP will continue to be supported because of its close ties to the Macintosh programming necessities.

Allegro Common LISP



Allegro CL 1.2.1

List Price: \$600

Published by: Coral Software Corp.,
P.O. Box 307, Cambridge, MA 02142;
(617) 547-2662, (800) 521-1027.

Version: 1.2

Requires: 1 megabyte and a hard drive; 2.5 megabytes or more RAM is recommended.

Compatibility: Mac II and MultiFinder friendly.

Application Size: 772K plus 223K for help strings.

Copy Protection: None.

For Symbolics object-oriented programmers, Coral also provides a Common LISP compatible version of the FLAVORS object-oriented system. The only thing missing from Coral's rendition of LISP is an interface-building tool. The Dialog Editor that is included in the sample code is an excellent beginning, but I would like to see more. The Interface Builder for Expertelligence's ExperCommonLISP is one of the premier software-development tools in any language. Allegro

This is a development system that rivals dedicated machines at a fraction of the cost.

Common LISP needs to expand into this area so developers can concentrate on what a program should do, not how to do it.

The documentation that accompanies the software includes Guy Steele Jr.'s *Common Lisp: The Language* for language reference and Rosemary Simpson's *LISP: The Index* as a reference to the Steele book. Coral might also consider an introductory package that includes Deborah G. Tatar's *A Programmer's Guide to Common LISP* (Digital Press, 1987). The Allegro extension documentation is good but could be improved with deeper examples of the object system and the Macintosh interface tools.

Allegro Common LISP can be executed on a 1-megabyte Macintosh with a hard drive, but constant garbage collection makes it a waste of time. This language calls for 2.5 megabytes of main memory — more if you want to create large systems. On a Macintosh II with more than 2.5 megabytes of memory, this is a development system that rivals dedicated machines at a fraction of the cost.

— Daniel W. Rasmus

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GRAPHICS

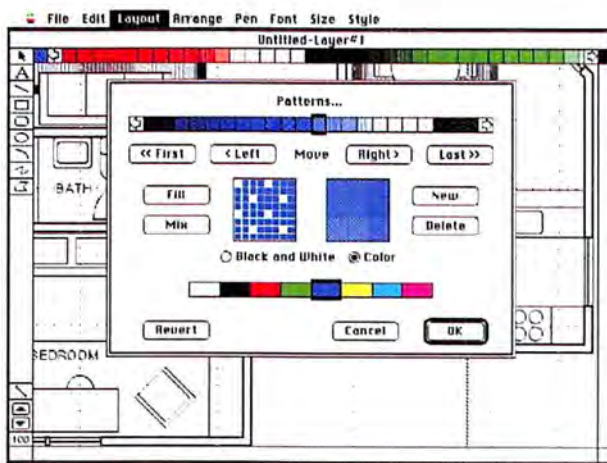
MacDraw II

Like popular songs, the old Mac standards are coming around again. One by one, Claris is releasing new versions of all your favorites. The latest is MacDraw II. While the beat may be faster and some lyrics have been added, the tune is still the same.

The new MacDraw features include layers, views, libraries, and color. Nonetheless, it retains its original elegant simplicity. MacDraw II, I'm sure many will rejoice, is not lost in the land of CAD. MacDraw II now has an auto-scrolling drawing pad expandable to 100-x-100 inches. Ruler and scale choices have also been increased. Solid, dashed, and arrow lines can be drawn by custom pens and automatically dimensioned. Objects can be rotated in increments as small as 1/10th of a degree. An info box provides precise cursor location and object dimensions. Text handling has also been improved. Now any font, style, or size can be mixed anywhere in a block of text, and the menus for these items can be customized.

MacDraw II lets you specify up to nine different views of a document and also supports as many drawing layers as memory permits. The stored views can transport you to different locations (and magnifications) of a drawing but only on the working layer. A view-shift cannot transfer you to another stratum. Layers may be active or hidden and can be shuffled with their contents up or down the stack. Hidden layers are invisible and cannot be edited until reactivated.

MacDraw's user interface has also been enhanced. Changing layers and zooming are now a mouse click away. Simply push the buttons (smaller/larger for zoom, up/down arrows for layers) on the tool palette. The current level of magnification or reduction is shown just above the zoom buttons. The selected layer is displayed on the document's Title Bar. The toggle for switching from edge to center-drawn



MacDraw II adds color to the venerable object-oriented draw program, but only in a cursory way. Patterns can be assigned one of the eight QuickDraw colors. MacDraw II does not open or save color in the PICT 2 format.

objects is in this button cluster as well. No messy menu selections or Command-key sequences.

Another nice touch is the ability to permanently assign colors (eight QuickDraw shades) to patterns in the pattern-editor dialog box. A color can be linked to the entire pattern, or individual colors can be assigned pixel by pixel, creating dithered patterns. The pattern/color palette is deployed across the top of the drawing window, and its contents (along with other preference settings) can be saved as a stationery document. Once the color palette is set up, choosing a combination of pattern and color becomes a one-step operation.

On the down side, the implementation of object libraries could be better. Libraries let you store frequently used objects and link them to documents in MacDraw II. If you remove the object from the document, it is deleted from the library — though a dialog box does give you fair warning. Previously created libraries can be accessed with the Open as Library option. To move objects to a new library, though, they must be transferred to the working document. A stationery document of images (with a library) is a solution if you need the same objects for several drawings. However, independent libraries accessible from every drawing would be better. And, there's no tool

for transferring library objects directly onto the drawing. You must use the standard Copy and Paste commands. A dedicated paste mechanism for library objects would be nice too.

Though MacDraw II is certainly well-appointed, some features are surprising by their absence — drawing modes, for example. Filled objects can be opaque only. So lots of special effects are out, and those neat pattern and color combinations can't be blended. A second omission is full PICT format support. Though MacDraw II can open standard PICT files with color information, it writes PICT only in black and white. And though it reads

MacDraw II

↑↑↑½



MacDraw II

List Price: \$395

Published by: Claris Corporation, 440 Clyde Avenue, Mountain View, CA 94043; (415) 960-1500.

Version: 1.0v1

Requires: 512K and two disk drives or hard disk recommended.

Compatibility: Mac II and MultiFinder friendly.

Application Size: 325K

Copy Protection: None

PICT 2 documents (they open without color or grays), it cannot write them at all. This is a serious oversight in a color application. Claris promises a fix in the next version.

MacDraw II
is considerably faster than
its previous incarnation.

An insert to the manual advocates using System 6.0 with the program. System 5.0 is not recommended (the sheet lists some possible problems), and earlier Systems are noted as unsupported. Given the incompatibilities generated with the first release of System 6.0, I've been in no hurry to upgrade. I conducted my tests under System 5.0, and MacDraw II worked fine. You can do the same, but you'll have to install System 6.0's printer driver in order to get hard copy.

MacDraw II is considerably faster than its previous incarnation. Claris claims a tenfold improvement, and I believe them. No more waiting for each object to be drawn individually; the entire drawing comes up seemingly all at once. Now \$395, the price of MacDraw II has also accelerated quite a bit. Registered users should take advantage of Claris' upgrade fee. At \$100, MacDraw II is reasonable.

If you've missed MacDraw because it was incompatible with the Mac II, then MacDraw II is definitely for you. Still, it doesn't take advantage of all the power that the Mac II has to offer, especially when it comes to color. Whereas the original MacDraw was a standard in the industry for transferring PICT documents, Claris has lost that status with MacDraw II because it doesn't fully support PICT 2. Claris has shown again that, while it is eager to get new versions of old products out the door, it isn't delivering all the features that it should.

— Carlos Domingo Martinez

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45			\$ 812/32	\$ 675/32		
60		\$ 773/40			\$ 680/40	\$ 696
65				\$ 862/32		
80				\$1123/19		
81			\$1135/28		\$ 996/28	
100			\$1532/25	\$1398/25		
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Quick Clicks

H A R D W A R E

Grappler LQ

"Buy a Macintosh and you're locked into purchasing other Apple peripherals." That's the prevailing myth that the Mac has been unable to shake. Some hold it as an axiom to follow if you want to maintain compatibility. But that bit of security comes at a price, literally, especially when it comes to printers. The Grappler LQ opens the window to less expensive printers and still manages to remain compatible with most applications.

The Grappler LQ is a parallel printer interface that works with both laser and 24-pin dot-matrix printers. Parallel printers dominate the IBM world, which means your options for output have increased considerably. The lineup includes such notables as the Hewlett-Packard DeskJet and LaserJet, NEC's P series, the Epson LQ, Okidata's Laserline 6, the Star Micronics NX2400, and many of Toshiba's printers. There are even more available, so check with Orange Micro for those not listed here.

A series of four DIP switches on the front of the Grappler LQ enables you to customize the device for a particular printer. I tested it with both the H-P DeskJet and the Star Micronics NX2400, both of which behaved well. You have to wrestle a little with the Grappler to attach it to the printer's parallel port because the printer's clips don't match the Grappler's connectors. A pair of needle-nose pliers eases things up a little.

As brutal as the physical connection is, the rest is a breeze. The Grappler uses Apple's ImageWriter LQ driver and a Control Panel resource to direct printer output. Just copy the two files into your System folder and follow the directions for turning everything on. You can also optimize a particular printer's performance by installing a configuration file in the System Folder. Fifteen of these "config" files shipped with version 1.0, and Orange Micro says it is expanding its list. Again, check with the company to

make sure the printer you have is supported.

The Grappler doesn't actually add a parallel interface to the Mac; it just converts serial information coming from the printer port to a form understandable by parallel printers. This means you will *not* gain the speed increases you usually get with parallel processing. The printer still prints only as fast as the serial interface sends it. In fact, there seems to be even more of a lag. On the DeskJet, output was downright slow. The Star Micronics speeded things up, but print quality was not as good as on the H-P. To get around the speed problem, a spooler option enables you to group documents together and print them at a later time. You can continue working on the computer while the files are printing, but performance suffers.

The quality on the Hewlett-Packard DeskJet comes close to that of a laser printer. At discounted prices, this makes the Grappler an attractive alternative to Apple's ImageWriter LQ and low-end LaserWriter SC. Sound too good to be true? There is a catch: You can't print with the standard Apple fonts. Apple was unwilling to license its fonts to Orange Micro.

Orange Micro provides three fonts from Bitstream that you must use to get the highest quality output. SWA Swiss is equivalent to Helvetica, SWA Dutch looks like Times, and SWA Courier is the familiar typewriter-like font. Bitstream is a well-known type house, and there's nothing wrong with its fonts. But being limited to three fonts reduces your printing options considerably. This is clearly not a good alternative if you desktop-publish.

The Grappler LQ hooks Macs up to parallel printers (both laser and 24-pin letter-quality). A cable, driver software, and special fonts combine to make dozens of once-unfriendly printers compatible with the Mac.



At press time, Apple had just released version 2.0 of its ImageWriter LQ printer driver. The Grappler LQ was incompatible with this new version, though Orange Micro promises a fix to its software. Upgrade policy had not been set at press time. Any software that is dependent on the new driver — MacDraw II, in particular — will not work until the fix is sent out. Also, be aware that the Grappler does not print PostScript and won't work on an AppleTalk network.

The Grappler LQ is a version of Orange Micro's Grappler C/Mac/GS, a 9-pin printer interface that won a 1987 *MacUser* Eddy Award for Best Printer Product. Perhaps the Grappler LQ's greatest value is if you have a 24-pin or laser parallel printer that isn't already married to a computer. In those cases it truly adds value to your system.

— Ben Templin

Grappler LQ



Grappler® LQ

List Price: \$129

Manufactured by: Orange Micro, Inc.,
1400 North Lakeview Avenue,
Anaheim, CA 92807; (714) 779-2772.

Version: 1.0

Requires: 1 megabyte and a parallel
24-pin or laser printer (check with
Orange Micro for compatibility).

Compatibility: Mac II and MultiFinder
friendly.

Application Size: cdev resource, 48K.
Copy Protection: None on software.

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Affordable Macintosh Publishing

In the past, Macintosh users had to choose between printers they could afford and output that looked good. Laser quality, previously out of reach, is now available to everyone regardless of his budget. The new DeskJet 300 DPI printer from Hewlett Packard provides the solution.

With a retail price of only \$995, the DeskJet offers quality matching that of the Apple LaserWriter IISC, at a cost below that of the ImageWriter LQ. At only 14 lbs, the DeskJet easily follows you to where the work is. Additional features include easy front paper loading, affordable and convenient ink cartridges, and envelope printing. If you need top quality output for the home, school, or small business, the DeskJet delivers.

The DeskJet and the Grappler LS

Until recently, the only problem with the DeskJet was that it didn't work with the Mac. Now the Grappler LS printer interface provides a complete solution, allowing the DeskJet to print from the Macintosh at a professional 300 DPI. Now your letters, homework, proposals, and every document you produce can have that laser quality desktop publishing look.

Quick Draw Printer	Resolution	Price
Apple LaserWriter IISC	300 DPI	\$2,799
Apple ImageWriter LQ	216 DPI	\$1,399
Hewlett Packard DeskJet	300 DPI	\$995
Apple ImageWriter II	144 DPI	\$599

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The Grappler LS is the latest Macintosh interface solution from Orange Micro. The Grappler LS connects the HP DeskJet or any HP compatible serial laser printer to the Macintosh Plus, SE, or II and drives it at its full 300 DPI resolution. To achieve this, the Grappler uses a standard Apple printer driver and translates the output for your printer, allowing compatibility with hundreds of popular packages.

The Grappler LS comes complete with cabling, Spooling software, and 3 fonts families (Times, Helvetica, and Courier look-alikes). Look for the Grappler LS and other Orange Micro products to bring the best printing solutions to you and your Macintosh.

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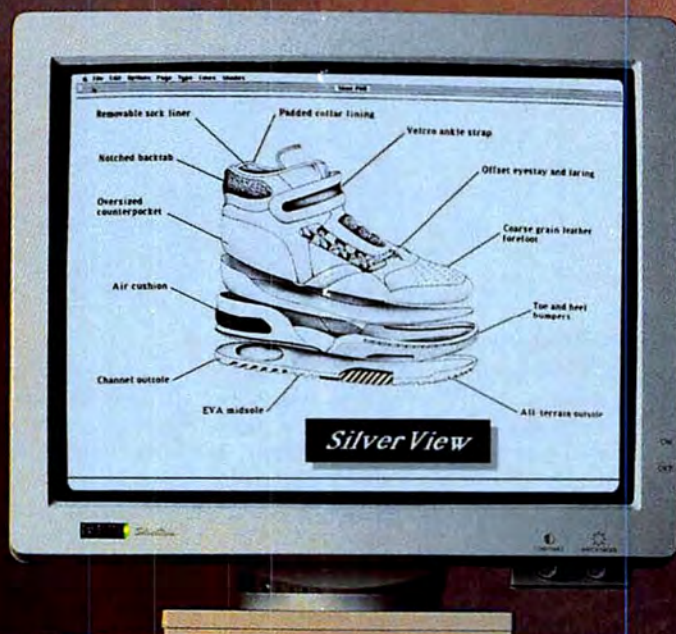
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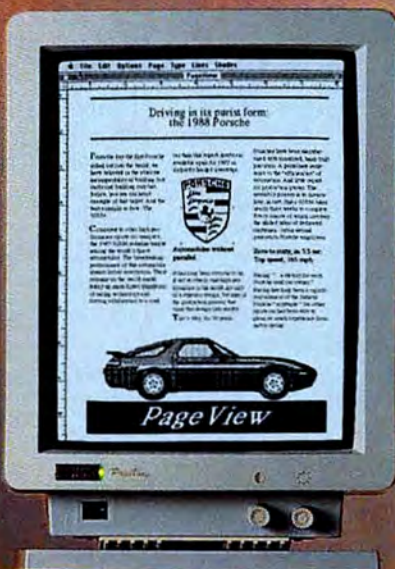
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Quick Clicks

SpeedCard

Are you suffering from speed envy? You work with a Macintosh SE and crave Mac II speed for recalculating spreadsheets and redrawing 3-D images but you can't really justify purchasing a Mac II? SuperMac's SpeedCard offers an economical solution.

Unlike many other accelerators, which use a 68020 processor (the Mac II's processor), the SpeedCard uses a 68000. That's the same processor you already have, but twice as fast. It also takes advantage of existing memory but accesses it through a 16K static RAM cache to perform faster. These two design decisions improve reliability while keeping costs down.

Installation requires just two steps. Plug the board into the SE expansion slot, then add the startup file to your System folder. The instruction manual includes an installation guide if you decide to do it yourself. The card can't connect to other SE cards unless they're designed to fit into SuperMac's expansion bus. So if you already have a card installed for an external monitor or the like, check to make sure it's compatible.

Once the SpeedCard is in, it automatically takes control of your Mac on startup. You can override it by pushing the programmer's interrupt and reset buttons, or you can just disable its static cache at any time through the Control Panel. (Disabling the SpeedCard or its cache should rarely be necessary, but occasionally you may run into incompatible software.)

The SpeedCard has a socket for a 68881 floating-point coprocessor that speeds up math operations. Versions with and without the coprocessor are sold, and if you buy a SpeedCard without the coprocessor, you can purchase one later and simply drop it in. You won't achieve all the performance gains you'd find from a 68020-68881 pairing, though, because the coprocessor does not execute in-line commands. Instead, it's memory-mapped, and most applications that are written specifically to work with a coprocessor

(like Eureka/881 and StatView II) won't. Excel, an important exception, can access a memory-mapped 68881 directly. In calculation-intensive Excel spreadsheets, especially those containing large numbers of trigonometric or exponential formulas, you'll see speed improvements of up to forty times. This is an upper bound, though macro functions, logical calculations, and many other operations won't improve dramatically.

Even if you don't use Excel, you may still want the coprocessor because of the software that comes with every SpeedCard. Most programs that perform math calculations use the Standard Apple Number Environment (SANE). The SpeedCard software can automatically modify the way SANE operates so it uses the coprocessor transparently. While this won't boost math routines by forty times, it can speed them up by up to roughly four times (or eight times over an unaccelerated SE).

I put the SpeedCard to use with a wide variety of programs. First, I operated it without a coprocessor. All programs benefitted, and some seemed more than twice as fast. Because of synergies that can develop between disk accesses, memory wait states, and the processor, doubling the processor speed doesn't necessarily double the overall speed of programs. Operations that are bogged down with accessing disks won't improve, and operations that require lots of RAM access may improve by more than two times. In general, I felt the overall speed of the Mac was at least doubled by the card. The only incompatibility I noted was that a few sounds appear scratchy and unnatural. The new beep sounds that are included with System 6.0 work poorly because Apple didn't follow its own directions. Most games and all programs using the Sound Manager correctly (that's about 99%) work fine.

Once I'd given the card a thorough workout, I added the coprocessor. Excel recalculations were completed in record time, and programs like the vanilla Eureka, StatView SEGraphics, and a few homemade programs from Lightspeed C were boosted from two



Test Results

(Actual Performance Time in Seconds)

4th Dimension Sort: 114.1

Excel Recalculation: 16.5

Word Scroll: 161.9

Load Application: 28.4

PageMaker Scroll: 44.9

MacDraw Redraw: 102.3

Normalized Average*: 61.0%

* The lower the number, the better the performance. The normalized average puts the product in a percentile range relative to other accelerator boards tested by MacUser Labs in the March '88 issue.

to four times by the new chip. I found a few incompatibilities, like suddenly disappearing axis labels, that could be corrected by turning off the coprocessor software from the Control Panel.

The SpeedCard is a remarkable value, especially considering its price and ease of use. It performs in a class with accelerators that cost much more. If you spend most of your time working with programs that do little floating-point math, get the version without a coprocessor. If spreadsheets, statistics, or mathematical simulations are your primary applications, you'll probably want the coprocessor. Check with the publisher first to be sure your applications are compatible. You'll feel as if your SE has been reborn.

— Linda Custer

SpeedCard



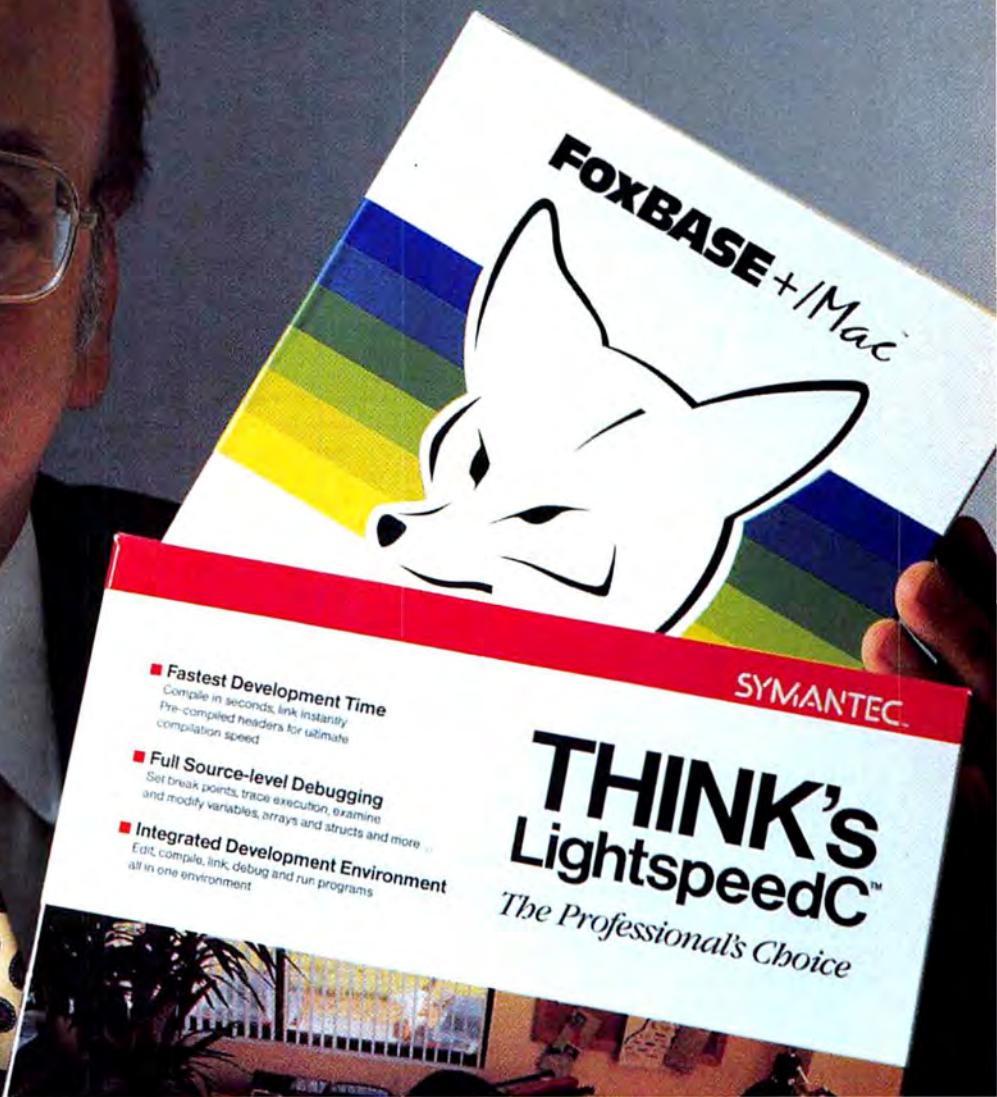
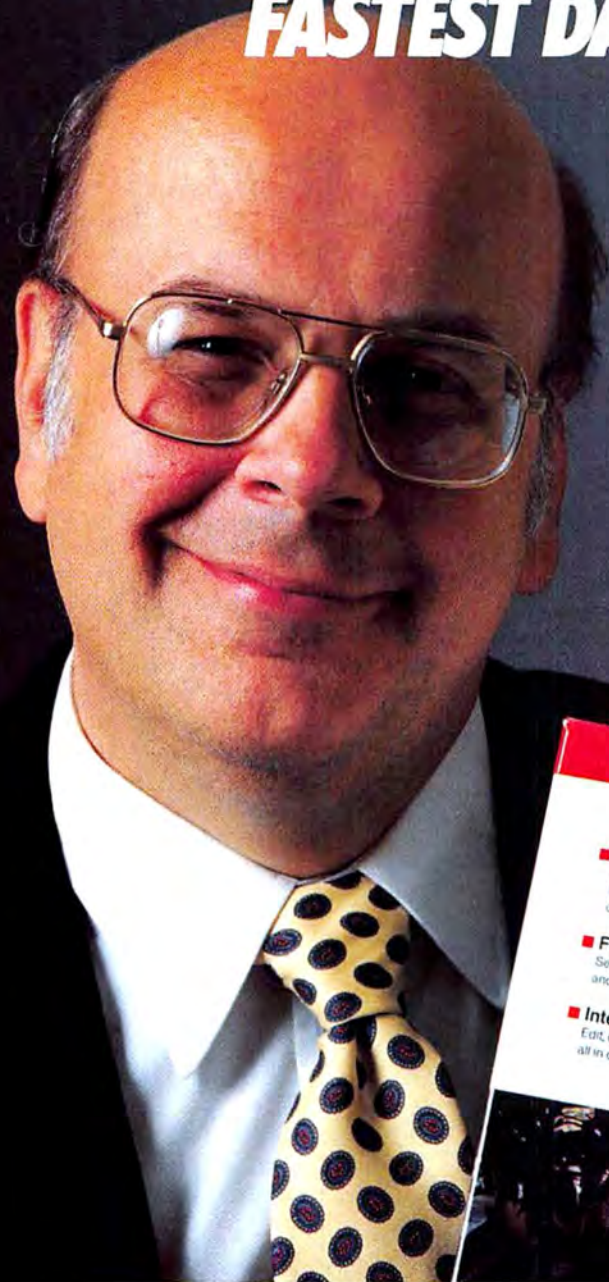
SpeedCard

List Price: \$399 without coprocessor, \$699 with coprocessor.

Manufactured by: SuperMac Technology, 295 North Bernardo Avenue, Mountain View, CA 94043; (415) 964-8884.

Requires: Macintosh SE

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Quick Clicks

Mac Crate 60-Megabyte Hard Disk

Hard disks don't come cheap, and if they do then they're usually not reliable. However, at least one company is now selling dependable drives at very reasonable prices. Mac Crate (previously known as Apple Crate) drives come in 20-, 40-, 60-, and 80-megabyte models. The Mac Crate uses a Seagate hard disk with a SCSI connector so that it can be hooked up to a Plus, SE, or Mac II. The unit reviewed was the 60-megabyte model, which lists for \$839. It was tested against the 20-megabyte internal drive of a Mac SE.

Mac Crate drives can be ordered directly from the manufacturer, in which case they are preassembled (more on this later). The drive comes bundled with all necessary cables, installation/formatting software, HDBackUp (the same backup utility distributed with Apple System software), and a 12-page manual. The drives are terminated internally. The 40-, 60-, and 80-megabyte models support automatic head-parking. Prices range from \$560 for the 20-megabyte model to \$1,249 for the 80.

The manual (and a one-page addendum) leads you through the setup and formatting process satisfactorily but stands guilty of at least two crimes of omission. When discussing setting the SCSI identification number, the manual wisely warns you not to use the number 7 since that is reserved for the Mac itself. But it should also indicate (for SE owners) that 0 is the preset identification number for the internal hard drive if your SE came configured that way. The Mac Crate drives are preconfigured for an identification number of 6.

The manual also omits one small but potentially important step: It never tells you to power up the drive! Now I suppose even a moron would know that this should be done, but some morons



The Mac Crate 60-megabyte hard disk puts a Seagate drive in a platinum casing. At \$839, or \$14 per megabyte, it's an outstanding consumer value.

are smarter than others. I, for instance, blindly followed the manual for several steps before I realized that turning the drive on might facilitate a successful initialization and formatting.

Once the drive is up and humming, though, what's not to like about it? Nothing, as far as I can see. I've had it in daily use for about a month without any problems at all (despite two earthquakes). In fact, I've been delightfully surprised by the drive's performance, quietness (the casing is effectively designed to cut down on noise) and especially its speed.

The speed comparison test was not particularly grueling. I timed the Mac Crate 60 against the 20-megabyte internal drive in the SE. I expected the Mac Crate to be slower, but it actually proved faster than the standard SE internal drive in every test — from about 5% to 20% faster, in fact. For example, opening a 341K PageMaker 3.0 document from the Finder took 34.81 seconds on the SE, as opposed to 29.63 seconds on the Mac Crate — nearly 15% better.

A similar test with MacWrite 5.0 yielded speeds from 10.5% to almost 12% faster. With MacPaint 2.0 the improvement was less pronounced: only 2% to 5% better than the internal drive. A 500K HyperCard stack opened 22% faster from the Finder (14

seconds instead of 18) on the Mac Crate.

The drives all come with a two-year warranty on parts and labor — one of the best deals in the industry. The company provides a toll-free technical-support line and promises 72-hour turnaround on repairs.

If you buy a Mac Crate from a dealer, rather than direct as I did, you should know that the drives are sent to the dealers partially unassembled. The dealers put together the final unit depending on the size of drive that you select. Since this sounds like a sure way to allow an ill-trained "technician" to botch up the drive, I called and visited Software Outlet, a Mac Crate dealer in Los Gatos, California. They claim to have sold more than 500 of these drives and had only one returned — because of a fluttery fan that was quickly replaced by the manufacturer. According to a couple of people at the store, the entire assembly takes less than ten minutes and is virtually foolproof. It basically involves slipping the Seagate drive into a Mac-colored metal case and then tightening some screws. Some dealers will even format the drive and test it before you schlepp it back to your home.

This is a series of hard disks that you should take a long, careful look at, especially if you're on a tight budget. They're inexpensive, quiet, attractive, and probably fast enough for any but the most demanding speed freak.

— Gregory Wasson

Mac Crate 60-Mb Hard Disk



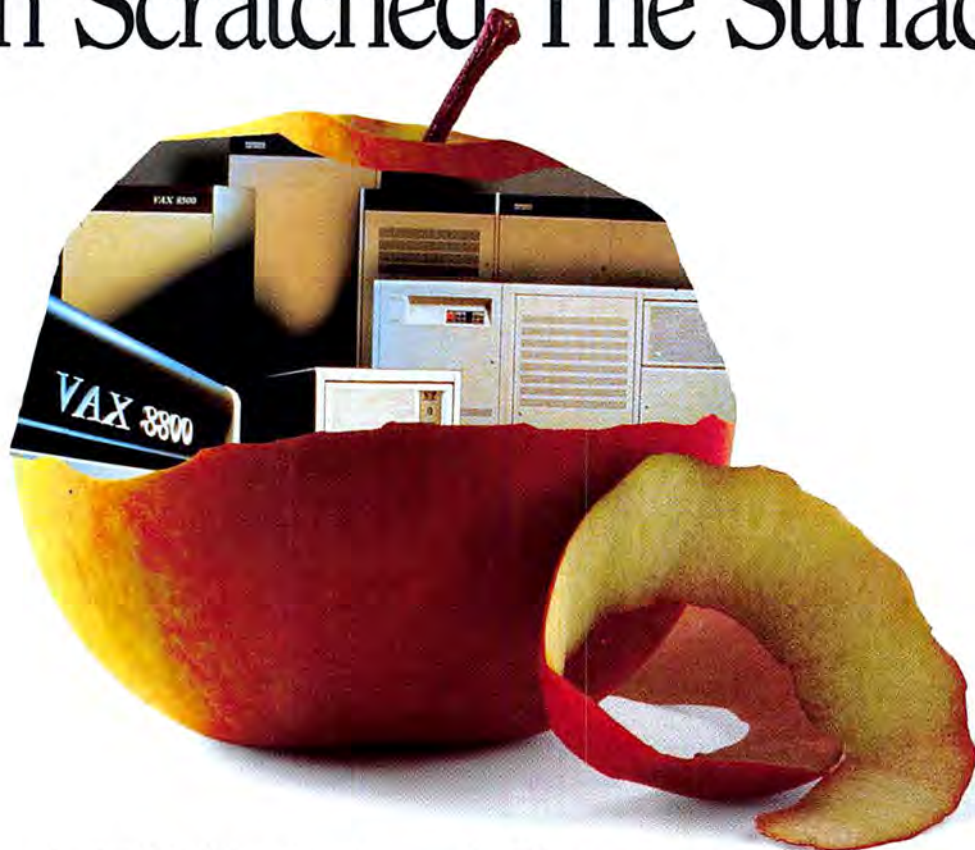
List Price: \$839

Marketed by: Crate Technology, 6850 Vineland Avenue, Bldg. M, North Hollywood, CA 91605; (818) 766-4001, (800) 543-5808. In CA, (800) 323-9994.

Requires: SCSI port.

Compatibility: Mac II friendly.

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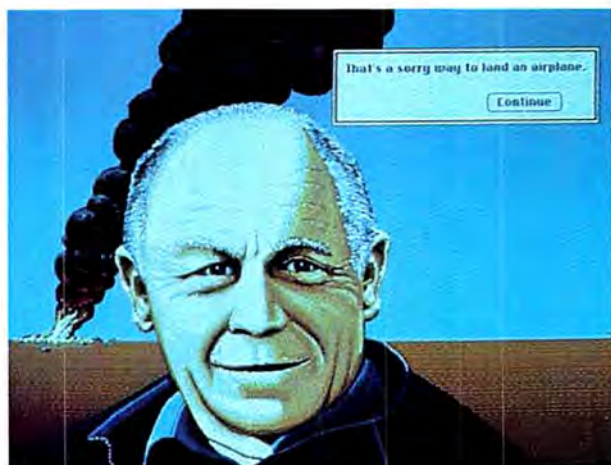
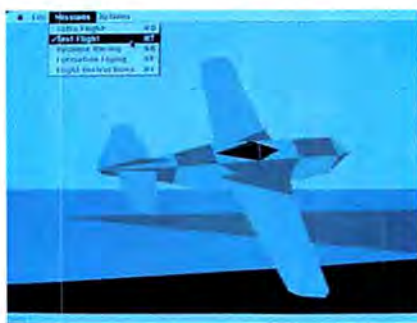
Chuck Yeager's Advanced Flight Trainer

Chuck Yeager rode the experimental X-1 through the sound barrier to become America's best known and most admired test pilot. He is, if he'll excuse a little quiet adoration, downright dripping with the right stuff. This makes it all the more unfortunate that he chose to give his name to Electronic Arts' Advanced Flight Trainer, a flight simulator that (in the Mac version at least) is just not up to scratch. Put simply, Yeager's AFT is nowhere near as good as either Microsoft's Flight Simulator or Spectrum Holo-Byte's Falcon.

AFT puts you at the controls of 14 different planes, 11 real ones and 3 imaginary. These include a World War I Sopwith Camel, a World War II Spitfire, a Cessna Skyhawk, an F-16 Falcon, an F-18 Hornet, an experimental X-1 and X-3, and a strange creation — the XRH-4 MadDog. The idea is to fly these planes through different test pilot maneuvers, in races against other aircraft, and in formation. After you have learned basic flying skills, you can try flying around, through, and over different obstacle courses. Finally, if you think you're good enough, you can try to stick to Yeager's tail as he maneuvers.

The instruments are pretty basic; most planes don't even have a counter to show engine power and there is little, if any, correlation between engine power and noise. Furthermore, the similarities between different planes are greater than the differences: aircraft from the same era, like the Spitfire and the Mustang, or the F-16 and F-18, are different only in name, having more or less identical instrument panels and performance capabilities. You fly by mouse and by eye.

AFT is not as good as it may sound. Flight controls are both rough and unrealistic compared with other flight



Chuck Yeager buys the farm with the Macintosh version of his Advanced Flight Trainer. While there's color on the Mac II, the program lacks many flying features common to other flight simulators.

simulators, and the scenery graphics are simplistic by today's standards. If you have a Mac II with a color monitor, you'll get a blue horizon, green ground, and some color in the objects, but there isn't any variety in the shading. Visual clues to altitude are given by the appearance of strange black balls sitting on the ground when you get low. At the same time, planes are extraordinarily difficult to control in flight and too easy to land once you have the knack. The test pilot maneuvers are boring after a short while, and the audiovisual quips from Yeager every time you crash are a feature you'll soon wish to do without.

Furthermore, AFT's brand of copy-protection requires you to thumb through the manual to match a particular plane's silhouette and answer a technical question about its performance. The manual itself is likely to infuriate Mac users since it is full of tantalizing details of options that are available only in versions of the program for other computers, including unlinking the rudder and ailerons,

variable winds, direction-finding radios, and instant replay of test flights.

This is a game you can do without. Sorry Chuck, but you bought the farm on this one.

— Jay Palmer

Chuck Yeager's Advanced Flight Trainer



List Price: \$49.95

Published by: Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171.

Version: 1.0

Requires: 512KE and two 800K disk drives.

Compatibility: Mac II and MultiFinder friendly.

Application Size: 150K

Copy Protection: Requires entering password information found in manual.

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InfoWorld, March 14, 1988...

"Simply Accounting lists for \$349, which gets you all six accounting functions. Other popular entry-level

accounting systems for the Mac include Plains & Simple, priced at \$395, and Back to Basics at \$199.

Of course, these competitors provide only three accounting functions, compared to the six functions of Simply Accounting. You can get these other accounting functions with higher level systems from Great Plains and Layered Inc., but they hit your wallet for \$600 or so a module.

Not every company will want to automate the additional functions of inventory, job costing, and payroll. But if you do, Simply Accounting delivers the goods in a cost-effective package.

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Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ease of Learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Support	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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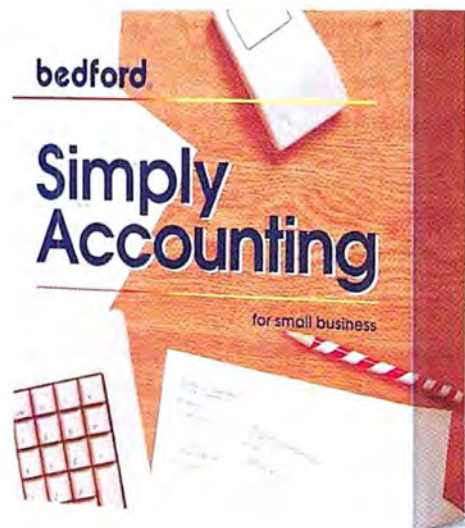
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by Jim Seymour

It's Not Just the Big Stuff

As much as we like to see the Macintosh as a star player in the computing world — out on the cutting edge of user interfaces, with powerful but friendly applications and beautiful output — it often serves importantly as a kind of utility infielder, too. And that kind of versatility can in many cases demonstrate the edge — at least in terms of cost-justifications — when Macs are being considered against MS-DOS machines for business use. And there's lots more value still lurking in discovering those little secondary uses. Because the process counts too.

I recently ran into a great example of the importance of that kind of utility function. A client needed a handsome, complex organization chart in a hurry. I agreed to help, toward the end of a busy day. This was largely an MS-DOS shop, and there were IBM-style PCs galore in the place. I often use (and greatly like) Banner Blue's nifty little Org Plus program on PCs for just this kind of job. It automates the construction of an organization chart, after you've filled in some on-screen forms indicating reporting relationships. And unlike earlier-generation DOS software, Org Plus has a lot of formatting options for building large and complex charts on single sheets of laser-printed paper. I'm not going to say Org Plus is MS-DOS software at its best — it is, after all, just an organization-chart drawing utility program — but it's not far off. Nice stuff.

Org Plus resides on the hard disk in the lap-portable I often carry on consulting visits, so we sat down together and started banging that organization chart into Org Plus. An hour later, we gave up. The complexity of the chart required more flexibility than we could wring out of even Org Plus. He had Harvard Graphics on his Compaq, and



it can do nice org charts. We worked with it for awhile too, without much success. And he had an old copy of DIAGRAM MASTER, now part of Ashton-Tate's MASTER GRAPHICS MS-DOS series, on the shelf as well. It was written specifically for this kind of work. We struggled with it for awhile too, then looked at each other sheepishly. It wasn't working. The chart was needed for a meeting early the next morning. And my flight home left in an hour and a half.

I'd seen Macs in a few offices at the company on an earlier visit. I asked if one was available, if it had a LaserWriter, and what software might be on the machine. My friend had no idea — he'd always refused to take Macs seriously — and so we went trooping through offices 'til we found an SE and a LaserWriter II in an office used by

the Facilities Management Manager. He uses the machine, I later learned, to keep up with floor plans, so he can tell in a moment whether there's an office available for new hires, whether there are enough phone lines to give someone a separate data line, where and how partitions and furniture modules should be moved, and so on. Luckily for us all, he does all that using MacDraw on the SE. It was even the recent, updated version from Claris — though in truth Claris did so little for the program beyond repackaging it that the first release would have worked about as well. (Please, please Mr. Campbell: Can't we at a minimum get such keyboard conventions as Option-P for Print into MacDraw? Can it really be that hard?) The short and sweet conclusion to this story is that, forty-five minutes later, we were holding a stack of copies of an incredibly classy-looking organization chart for his new entrepreneurial startup venture within the company. The look of those charts, printed in Helvetica and Helvetica Narrow fonts on legal-size sheets, was dazzling. He was a big hit in the boardroom the next morning — as I knew he would be — and he called to tell me that a lot of the talk in that room focused on how professionally he'd taken their idea from the idle-talk stage to that kind of cohesive organizational structure.

Know where he got a lot of that structure? In working with the chart-in-the-making on-screen — dragging boxes here and there, drawing solid-versus dashed-line reporting relationships, grouping the boxes for people in subdepartments and then dragging them around on-screen to see how those jobs fit under new managers. Better ways to make it all work, to put it simply. It was fun, watching him get caught up in the process of reducing

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MAINSTREAM MAC

those pages of legal-pad scribbles to a laser-printed result, not least because what we wound up with didn't bear much resemblance to what he'd started out with.

After the first 15 minutes I just sat back and watched him — a Mac nov-

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ice — click and drag and insert and copy and paste and the rest of it.

The *process* worked for him, in a way that you and I know would have been impossible on any other kind of computer. What we did would look to many like a trivial, even unnecessary task: drawing an organizational chart. There wasn't any high-tech sexiness here: We used a middle-of-the-line Mac, and software that appears on no one's Hot Prospects list. And we got the job done in less than an hour.

Some people would sneer at that kind of use of a Mac, saying it doesn't have much to do with the apparent reasons for buying a business computer: turning out letters, or keeping the books, or forecasting with spreadsheets.

Exactly! That's an important part of why the Mac so often clicks in business: Once you recognize the genuine usefulness and importance of those little utility jobs the Mac makes easy, you often get caught up in the process of using the computer to discover answers you didn't have when you sat down. And that's powerful stuff. The power, I think someone said, to be your best. ☞

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ANNOUNCING 162 NEW PRINTERS FOR THE MAC!



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Ezra Shapiro, Consulting Editor
BYTE Magazine, Feb., '88

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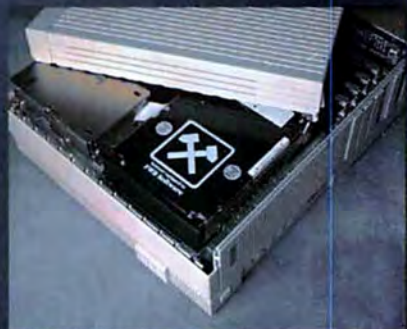
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by Robert R. Wiggins

DTP R.I.P.

No, desktop publishing isn't really dead. But don't you sometimes wish it were? Are you as sick and tired of hearing about it as I am? Did you ever throw a party and have someone you didn't really know show up and with wit and charm and a good supply of jokes take control of your party? So that despite the wit and charm you wished the life of the party would just go away? Desktop publishing is like that party crasher. It came wandering into the Macintosh market, and now it sometimes seems that it's all anyone ever talks about. So much so that some people think that desktop publishing is all the Macintosh is good for.

There's no question that desktop publishing has been a boon to the Macintosh. It's the application that got Macintoshes and LaserWriters into many companies that were true-blue IBM PC users. And once the Mac was in the door, it quickly captured the hearts of many business users. But enough is enough! With all the brouhaha about desktop publishing, all the other wonderful things the Mac can do are often overlooked. So in this column we'll run down part of the list of business applications that the Mac should be known for.

SPREADSHEETS

The initial success of the personal computer was fueled by spreadsheets. Lotus 1-2-3 sold a lot of IBM PCs. The Mac has Microsoft Excel, the most powerful and the easiest to use spreadsheet the computer world had ever seen when it was first introduced. The Mac also has MacCalc, a faster spreadsheet with fewer features; Trapeze, a presentation worksheet package that focuses on flexibility and beautiful output; Jazz and Microsoft Works, integrated packages built around spreadsheets; and even the old



There's even one word processor, WriteNow from T/Maker, that bridges the gap between the low end and the high end.

standby Multiplan, the original spreadsheet for the Mac. And if that's not enough, Ashton-Tate recently released Full Impact, another contender for the spreadsheet title, and there's Wingz from Informix waiting in the, well, er, wings. Lotus has announced

that it is working on 1-2-3 for the Mac too. So if it's spreadsheets you want, the Mac is the computer to use.

WORD PROCESSING

For a long time, the IBM PC had an edge in the high-end word processing market, with a large number of powerful products, while the Mac had MacWrite and Word 1.05. Times have changed, and the Mac now has a plethora of word processors. MacWrite still anchors the low end, but Word has been heavily revised — first to version 3.0, with the even more powerful version 4.0 coming soon. Microsoft has added a low-end word processor, Write, to its product line as well. Joining Word at the high end are WordPerfect for the Macintosh and Ashton-Tate's FullWrite Professional. There's even one word processor, WriteNow from T/Maker, that bridges the gap between the low end and the high end, combining the simplicity of MacWrite with some of the power user features of Word and WordPerfect. Even Micropro, the WordStar people, is expected to join the fray soon. These word processors aren't the best in the world, but they're on the road to superiority.

DATABASES

Another big boost for the personal computer business came from database applications, and the biggest booster for the PC was dBASE. After a long gestation period, dBASE Mac was finally born. But by the time dBASE Mac made the scene, the Macintosh already had some excellent database contenders. There were simple file managers, such as Microsoft File and FileMaker, as well as powerful relational database systems such as Helix, Omnis, Reflex Plus, and 4th Dimension. 4th Dimension could even read and write PC dBASE files before dBASE Mac came along.

PRESENTATION GRAPHICS

The concept of presentation graphics was a boom that started on the mainframe, but the hardware and software necessary to make it happen was very, very expensive and usually difficult to learn and use. The graphic ori-

entation of the Mac made possible software that left some of the mainframe packages in the dust, and the LaserWriter made better black-and-white output much less expensive and much easier to produce. Programs like MacPaint, MacDraw, Cricket Graph,

Cricket Draw, and even the charting component of Excel made business and presentation graphics easy to produce. With the coming of the Mac II and the advent of color, we're starting to see color-oriented graphics programs and color-output devices at a fraction of what they cost just five years ago. Programs like Cricket Presents, MORE II, Microsoft PowerPoint, Aldus Persuasion, MacDraw II,

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Grandma's old stick had her in a tailspin. She was even about to hang up her goggles!

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No matter

what you want to connect your Macintosh to, there's probably a product on the market to make it possible.

and ReadySetShow coupled with output devices like the Mirus or Montage film recorders, make high-resolution color output fast, easy, and orders of magnitude less expensive.

COMMUNICATIONS

The Macintosh has long had ASCII communications capabilities through such programs as Smartcom, Microphone, and Red Ryder. Special-purpose terminal emulation has also been available. But now the Macintosh has many options for IBM connectivity from companies like Tri-Data and Avatar, and LAN capabilities including the built-in AppleTalk in addition to offerings from 3Com, Novell, and TOPS. No matter what you want to connect your Macintosh to, there's probably a product on the market to make it possible.

You probably get the idea by now, so we'll stop. The list of things the Macintosh can do goes on and on and on and on. There's a lot more to the Macintosh than desktop publishing, and the focus on desktop publishing to the exclusion of all these other capabilities is really selling the Mac short. So the next time you're pitching a Macintosh to your boss, let desktop publish-



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PINSTRIPE MAC

ing rest in peace and promote some of these other aspects of the Mac's talents. That way you can sell the Mac on its merits, and if it doesn't go well, you can always fall back on "But boss, it's a great desktop-publishing machine too!"

PINSTRIPE PICKS

Some products recently released or upgraded that are worth looking into if you use your Macintosh in business:

ReadySetShow: (Letraset) Another contender in the desktop presentation category shows its roots in desktop publishing with features like text that wraps around graphics. ReadySetShow includes a simple graphing environment and a good feature set, but it needs it to face the strong competition from Microsoft PowerPoint, Cricket Presents, Aldus Persuasion, and Symantec's MORE II. It lacks the excellent examples and templates offered by some of the competing products. Still, it's worth a look, especially if you already know ReadySetGo! — their interfaces are similar.

Suitcase: (Fifth Generation Systems) Version 2.0 is a major upgrade that adds many features to the program, which allows you virtually unlimited fonts, desk accessories, FKEYs, and beep sounds. Suitcase now includes utilities to "harmonize" font files, eliminating any font conflicts, and to compress font and sound files.

Pyro! (Fifth Generation Systems) The popular screen saver formerly bundled with Suitcase and PowerStation is now a separate (and inexpensive) product and has been completely revised so that background processing and telecommunications can continue during the fireworks display. The new version, 3.0, also allows you to have a roving clock display instead of fireworks.

Screen Gems: (Microseeds) A collection of three small utilities for the Macintosh II: Color Desk, by Paul Mercer, which lets you use a color PICT file as your desktop background; Dimmer, by Chris De-rossi, a screen dimmer; and Switch-A-Roo, by Bill Steinberg, which lets you quickly switch screen modes without having to use the Monitors cdev. ☐

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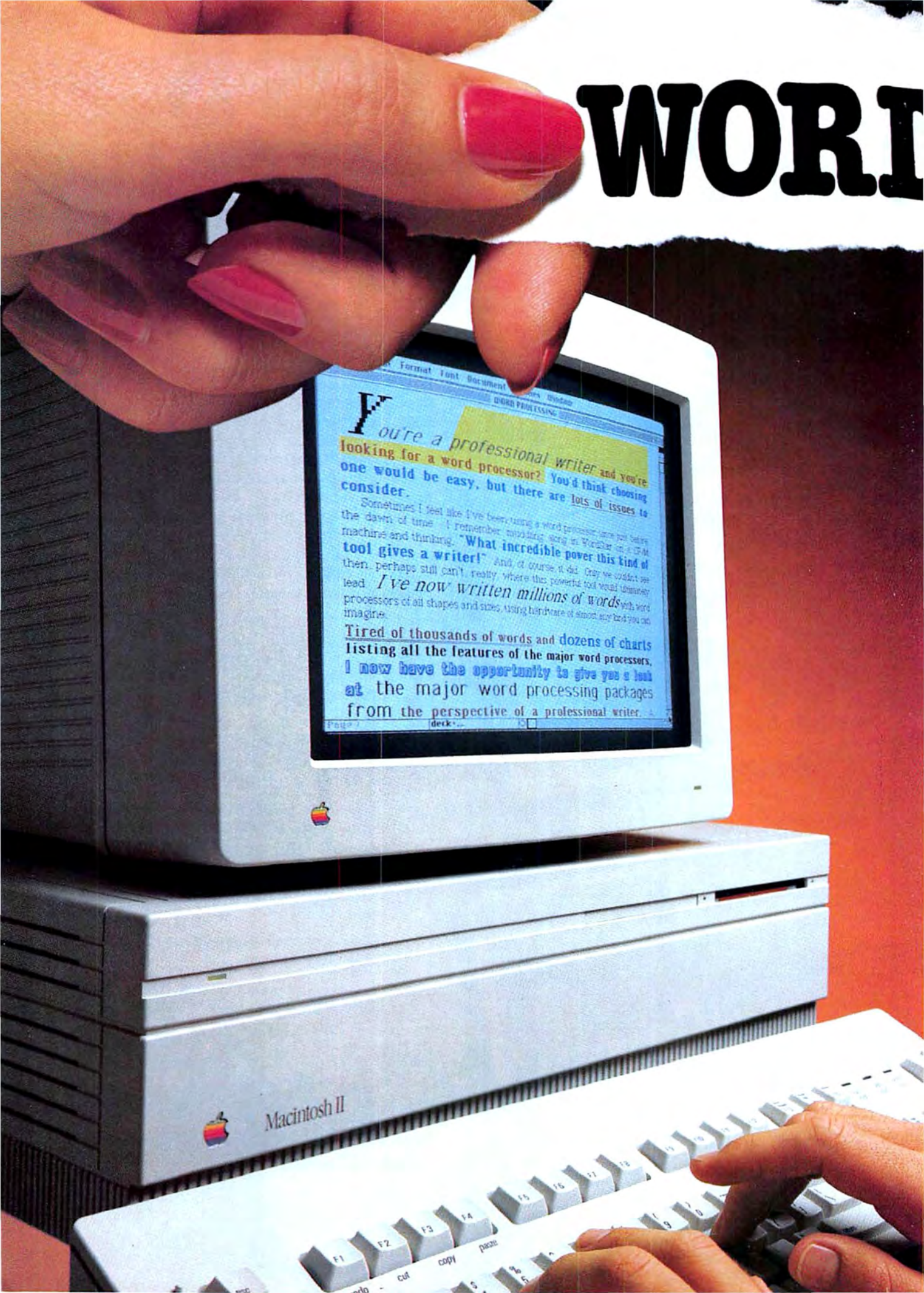
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WORI



on the word processor for a substantial income. These special interests and needs have been overlooked in some reviews of these products.

PROCESSING

If you're a professional writer and you're looking for a word processor, choosing one would be easy, but there are a lot of issues to consider. I feel like I've been using a word processor since just before the dawn of time. I remember muddling along in WordStar on a CP/M machine and thinking, "What incredible power this kind of tool gives a writer!" And, of course, it did. Only we couldn't see then, perhaps still can't, really, where this powerful tool would ultimately lead. I've now written millions of words with word processors of all shapes and sizes, using hardware of almost any kind you can imagine. A former journalist, I definitely do not long for the "good old days" of the trusty Underwood. I'll be just fine over here in the corner with my fast, efficient,

As the Word Turns

You're a professional writer and you're looking for a word processor? You'd think choosing one would be easy, but there are lots of issues to consider.

Sometimes I feel like I've been using a word processor since just before the dawn of time. I remember muddling along in WordStar on a CP/M machine and thinking, "What incredible power this kind of tool gives a writer!" And, of course, it did. Only we couldn't see then, perhaps still can't, really, where this powerful tool would ultimately lead. I've now written millions of words with word processors of all shapes and sizes, using hardware of almost any kind you can imagine. A former journalist, I definitely do not long for the "good old days" of the trusty Underwood. I'll be just fine over here in the corner with my fast, efficient,

quiet word processor, thank you very much.

Tired of thousands of words and dozens of charts listing all the features of the major word processors, I now have the opportunity to give you a look at the major word-processing packages from the perspective of a professional writer. Professional writers, fiction or non, depend on the word processor for a substantial part of their income. These special interests and needs have been overlooked in some reviews of these products.

Such reviews often rate features rather than benefits. Most Macintosh-literate users I know never use these features. In all the words I've written,

BY DAN SHAFER

I've never had to worry about whether my footnotes could be formatted in more than one way.

SPECIFIC TOOLS

Now that you're aware of my background and prejudices, let's proceed to a product-specific evaluation of seven word processors. The word processors we're going to examine are FullWrite Professional 1.0, MacWrite 5.0, MindWrite 2.0, Word 3.02, WordPerfect 1.0.1, Write 1.0, and WriteNow 2.0.

Keep in mind that this is not a full-blown review; many of these products have been previously reviewed by *MacUser*, and others are either reviewed in this issue or slated for reviews in forthcoming issues.

THE "ORDINARY" WRITER

While there's no such thing as an ordinary writer, your word-processing demands will be small if your writing tasks involve only narrative text. This is not denigrating. It is simply to state that you should not go overboard and buy the most feature-laden, memory-hungry, expensive word processor you can find. You just don't need it. I fall into this category, so it is the one where my personal preferences are perhaps most evident. But like any other technology writer or fan, I like to have the latest and greatest toy. So I tend not to have a lot of loyalty to a specific word processor.

For the first two years it was available, Microsoft Word 3.01 (since upgraded to 3.02) was my word processor of choice. I made that choice not because I thought Word was such a great product, but because it was better than the others that were available. I made a concerted study of the field and found nothing else that was as good, even though I always felt that the Word interface was pretty bland. Sometimes, Word gets in the way of the process of creating. I've tolerated that because there were no better solutions.

But for the majority of my word processing, Word is clearly overkill. And it's on the expensive side. So I don't usually recommend it to people in my line of writing.

The Write Album

It used to be so easy. You brought home the Mac, plugged it in, slid the MacWrite disk in that single-sided drive, and went to work. If there were things MacWrite couldn't do, well, maybe you didn't really need to do them, anyway.

Times sure change — there are now enough word processors on the market to defy the intellect and memory of the typical salescritter, let alone the average user. Buyers don't get MacWrite — or much else — for free any more, so they have to delve through the piles of programs. How to choose?

Word processors can be classed roughly into two categories: low function and high function. Notice that even the low-end programs have gained significant functionality even in the last few months, adding such features as spelling checkers and Command-key combinations. More powerful programs can perform sophisticated mail merging, significant page layout, indexing, and so on. The low-end programs include packages like MacWrite, WriteNow, and MindWrite; the high-end packages include WordPerfect, Word, and FullWrite.

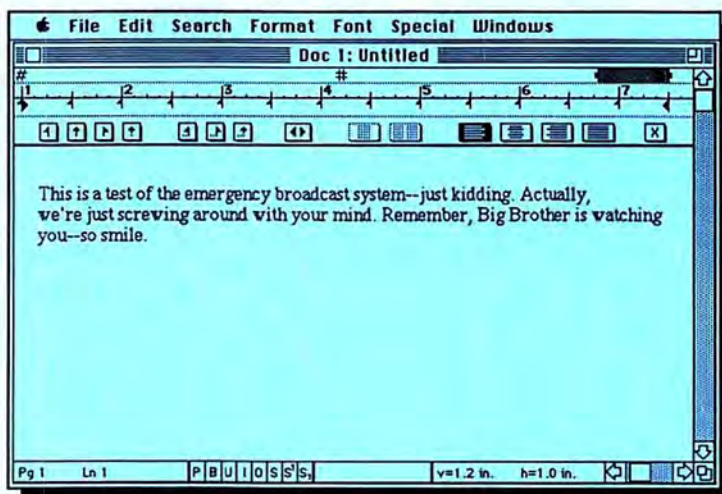
Don't get trapped in a features war: If you like to organize your work in outlines, using WordPerfect would be a disaster. Use MindWrite instead. If you exchange documents with MS-DOS machines, look at WordPerfect and MindWrite Express. As with all important software purchases, examine the different features carefully before you buy.

The very nature of this kind of comparison shortchanges the innovative features of these programs. Nothing else works like Word's style sheets, MindWrite's outlining, or WordPerfect's macros and file management; that's why there's no comparison of them here.

Word processing is the most personal of all computer applications. When you get right down to it, most word processors do more or less the same things; the difference is in *how* they do it. To help you in your decision on a word-processing package, we'll take a look at some of the main features of WordPerfect 1.0.1, Word 4.0, MacWrite 5.0, MindWrite 2.0, FullWrite Professional 1.0, WriteNow 2.0, and Works 2.0. (Word 4.0 and WriteNow 2.0 should be available by the time you read this.)

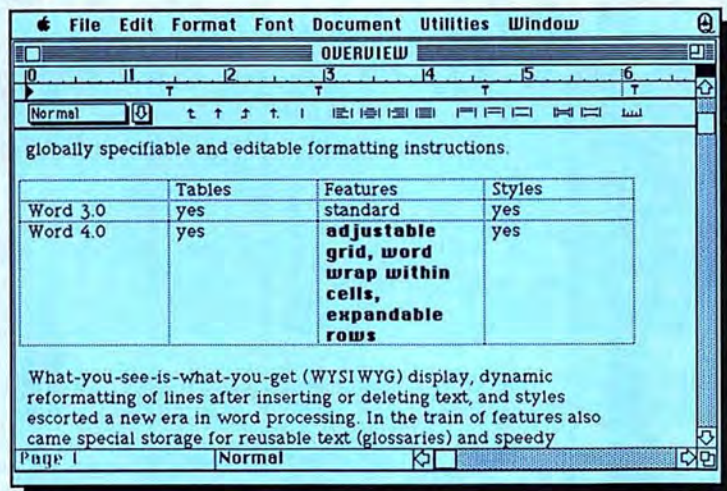
— Daniel J. Rosenbaum

WordPerfect



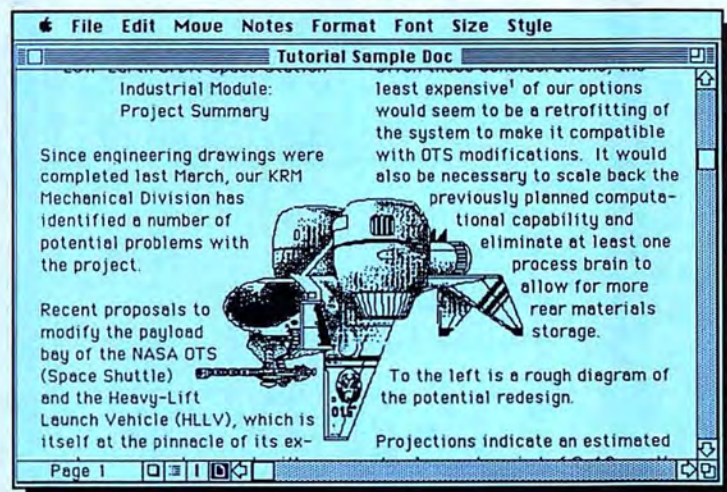
WordPerfect's ruler and opening screen indicate a high degree of control. You can see the page and line number, as well as distance from the upper-left corner of the page. The targets at the bottom of the screen let you pick type style with a single mouse click. (The last two targets — subscript and superscript — were added in version 1.0.1.) The ruler lets you control hyphenation, seven kinds of tabs, justification, and the position of margins and page numbers. Also, WordPerfect's ruler lets you split the page into as many as 24 columns.

Word 4.0



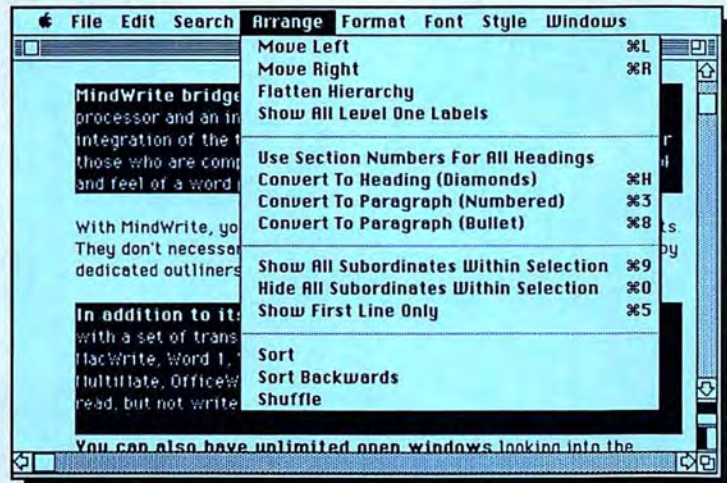
Creating multiple columns in Word used to be as intuitive as quantum theory, but Word 4.0 takes a new approach. This grid acts much like a spreadsheet. Sizing the columns is simply a matter of setting the number of columns and rows in a dialog box — Word calculates the cell dimensions automatically. To change the column dimensions, you can drag the little T-shaped symbols on the ruler. Text will wrap within each cell, and the rows will expand to the size of the largest cell in the row. Each cell can have its own format, as shown here.

FullWrite Professional



While many users might not need this function, FullWrite Professional supports sidebars within documents. This is what makes FullWrite a page-layout program in addition to being a word processor. These sidebars can contain pictures, multiple columns, and other sidebars. Moreover, you can make text wrap around graphics that you either paste into a document or create yourself, using tools that you've seen in MacDraw.

MindWrite

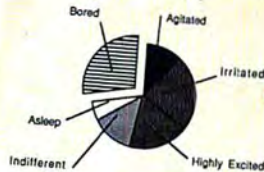


MindWrite bridges the gap between a full-strength word processor and an intuitive outliner. Its best feature is the seamless integration of the two functions. In MindWrite, headings and paragraphs can be any length. At any time, you can choose to outline or un-outline part or all of a document. MindWrite can, with a set of translation filters, read and write files produced by MacWrite, Word 1.0, Word 3.0, WordPerfect 4.2 (MS-DOS), WordStar, MultiMate, OfficeWriter, VMS WPS-Plus, and DCA-RFT. It can also read, but not write, ThinkTank documents.

TRY FULL IMPACT AND SEE WHY EXCEL DOESN'T.

HOW SPREADSHEETS COMMUNICATE #3 in a series

A recent tracking study performed by Numerical Understanding Methods Bureau, Inc. has determined that constant and prolonged exposure to spreadsheet output may result in cases of extreme drowsiness and lethargy. Contributing factors have been numbers with no context, lack of graphic elements, and limited abilities in the treatment of text.



SPREADSHEET USAGE

User Category	WEST	SOUTHWEST	NORTH	EAST	SOUTHEAST	TOTAL
Records	21	38	93	45	32	249
Analysis	43	47	26	39	43	197
Budgeting	36	64	39	93	45	277
Cost Acctg	24	45	84	48	73	274
Scratch Paper	11	81	58	19	18	187
Tranquilizer	52	13	76	46	44	231
Fishwrap	24	53	73	63	92	305
To Impress Boss	14	41	83	27	38	203

ARE SPREADSHEETS EFFECTIVE?

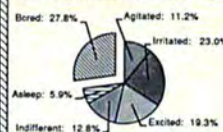


As seen in the Usage chart above, the NUMB study has demonstrated that people in fact use spreadsheets for a wide variety of purposes. As a general rule, excitement levels tend to increase in correlation with the more non-traditional uses. A subset of the findings of the preliminary data from the largest universe of the NUMB research has shown that spread-
sheet use is nearly as effective as (see page 27).
There is no outside the NUMB research, a track-
ing study conducted by the Sorbonne Research Bureau.

How Spreadsheets Communicate #3 IN A SERIES

A recent tracking study performed by Numerical Understanding Methods Bureau, Inc. has determined that constant and prolonged exposure to spreadsheet output may result in cases of extreme drowsiness and lethargy. Contributing factors have been numbers with no context, lack of graphic elements, and limited abilities in the treatment of text, (and, in some instances, an over-reliance on dry language, like this).

Excitement Level



SPREADSHEET USAGE

User Category	WEST	SOUTHWEST	NORTH	EAST	SOUTHEAST	TOTAL
Records	21	38	93	45	32	249
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ARE SPREADSHEETS EFFECTIVE?



As seen in the Usage chart above, the NUMB study has demonstrated that people in fact use spreadsheets for a wide variety of purposes. As a general rule, excitement levels tend to increase in correlation with the more non-traditional uses. A subset of the findings of the preliminary data from the largest universe of the NUMB research has shown that spreadsheets vary greatly in effectiveness (see graph at left). Why this may be is outside the purview of this fictitious research; however, a tracking study conducted by the Sorbonne Research Bureau.



It's the difference between merely analyzing something, and actually seeing what it means.

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Full Impact is a spreadsheet product for the Macintosh that goes beyond the raw number-crunching capabilities of Microsoft Excel: it gives you the ability to easily turn your work into clean, crisp—and understandable—documents.

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Oops—maybe that block of text would look better elsewhere. Fine. Just click on it, and drag it there. Want to customize an icon? Or create and customize charts and graphs within your spreadsheets? Same easy process. You

can even bring in art from other programs, then merge it with text and data, all on the same page.

But lest you get the impression that Full Impact is merely a presentation program disguised as a spreadsheet, consider this:

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even the largest projects. And more than enough speed to recalculate them quickly.

You can open and work in as many as eight spreadsheets simultaneously. As well as create powerful, time-saving macros.

And, you can even exchange files with many other popular programs, including Excel and Microsoft Works, Lotus

SEE WHAT YOU MEAN

	Full Impact	Excel 1.5
Virtual Memory (allowing use of all cells)	Yes	No
Mini Text Editor	Yes	No
Customizable Icons	Yes	No
Hierarchical Menus	Yes	No
Mix fonts, sizes, styles, cell by cell	Yes	No
Optional Automatic Saving	Yes	No
Access RAM beyond 1Mb	Yes	No
Print charts and spread- sheets on one page	Yes	No
Line, Rectangle, Oval Drawing Environment	Yes	No
"C"-like procedural macro language	Yes	No

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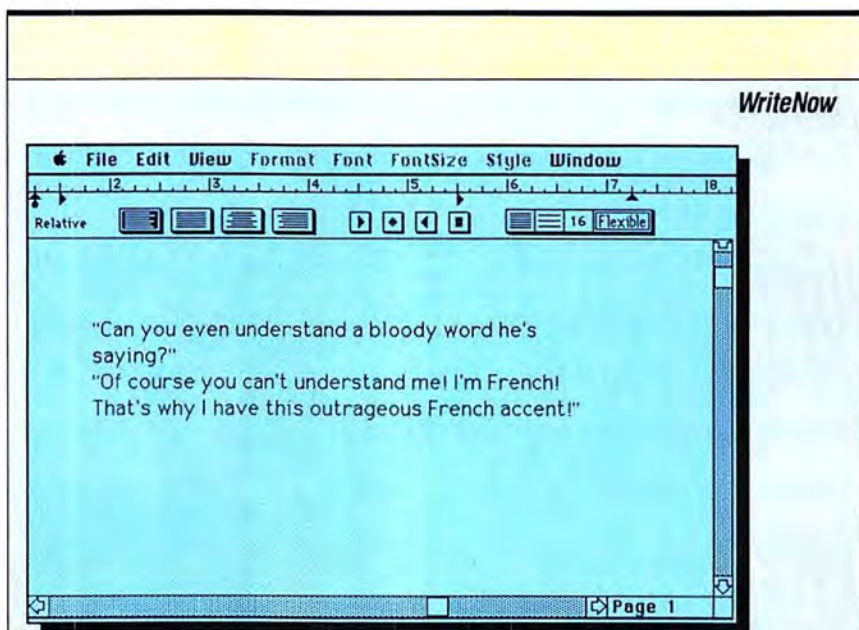
Some of the things I like a lot about FullWrite Professional were clearly inspired by WriteNow, and that gives me a nice feeling.

At the lower end, though, pickings are sparse. Microsoft Write is a relatively new entry, and it shows some promise, though some of the things I find annoying about Word are carried over to Write, which is essentially a subset of its bigger brother.

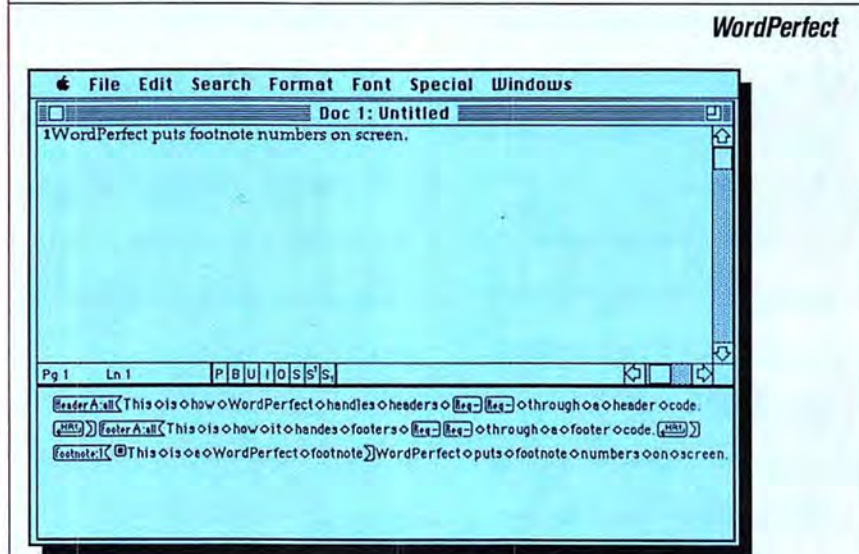
When Claris took over MacWrite, I thought we'd be in for a real word processing treat. I can't believe they left the one-window-at-a-time limitation and that they still don't support horizontal scrolling. I feel confined within the too-narrow margins defined by MacWrite.

I had tried WriteNow 1.0 and found it to be an intriguingly useful word processor. But its inability to move easily among file formats was too severe a limitation for me to accept. In Version 2.0, this problem, and a number of others, goes away. Some of the things I like a lot about FullWrite Professional were clearly inspired by WriteNow, and that gives me a nice feeling. By the time you read this, I suspect I will have made WriteNow 2.0 my word processor of choice. It is reasonably priced, presents an appropriate interface, is faster than any other auto-paginating word processor I can find, and offers a nice range of flexibility.

MindWrite is too structured for my tastes and WordPerfect is far from perfect. Frankly, in moving WordPerfect (my word processor of choice on the IBM PC) to the Mac, the folks at WordPerfect showed a woeful lack of understanding of how Mac applica-



WriteNow, as you might expect, looks a lot like MacWrite, but it has one truly remarkable feature. The icons on the right of the ruler let you precisely set what typographers call *leading*, the amount of space between lines. You can also decide whether to let the program change that leading to accommodate superscripts, subscripts, and larger-than-normal fonts. And, with a click on the ruler, selected portions of your text are highlighted. You can now change the spacing and format of this section without changing the rest of the document. The ruler stays at the top of the document, out of your way.



WordPerfect holds headers, footers, and footnotes in its controversial "codes." They're easy to edit, though, and footnote references are displayed as part of the document. The program lets you use two headers and footers at a time, and while not shown on-screen, they are displayed when you preview the document. Footnotes, of course, renumber automatically.

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Use TOPS, AppleShare and E-Mail from out there, too.

You can dial in and get full use of your TOPS, AppleShare and E-Mail network software at home base, and print stuff on your LaserWriter, make slides on the slidemaker, or do whatever you usually do when you're plugged directly into your network.

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You can hear your call progress through the speaker of your own Mac, regardless of where the NetModem is, so you can hear exactly what's happening to your call.

See what's happening.

You can see the NetModem status indicators directly in the menu bar area of your own Mac whenever you use it. They show high speed transmission, carrier, and data flow. Your Mac screen also alerts you to incoming calls and NetModem availability at your request.

Save money on modems.

One NetModem can do the work of a dozen or more standard modems and save you a great deal of money. If your users are heavy telecommunications users, you can always add a second or third NetModem to your network. You'll still be way ahead on cost.

Save money on phone lines, too.

The savings on phone lines can really be dramatic, too. The NetModem approach minimizes the need for multiple phone lines and maximizes the utilization of the lines you do use.

Try it today. You'll be glad you did.

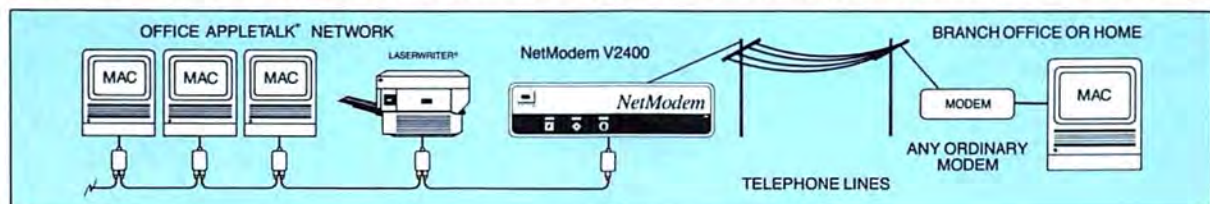
Try it out today at your nearest SHIVA dealer and see how simple it is to bring SuperConnectivity™ to your AppleTalk network. Just call us at 1-800-458-3550 for the location of your nearest dealers.

	NetModem V2400	All the Others
2400 baud (fully Hayes® compatible)	Yes	Maybe
Dial-in Network Access from remote location	Yes	No
Remote use of TOPS®	Yes	No
Remote use of AppleShare™	Yes	No
Remote use of LaserWriter®	Yes	No
Remote use of E-Mail	Yes	No
All Macs on network can use one modem	Yes	No
Eliminates cost of extra modems	Yes	No
Eliminates cost of extra phone lines	Yes	No
Audible call progress thru Mac speaker	Yes	No
Mac screen shows call status	Yes	No
Alerts Macs to incoming calls	Yes	No
Stand-alone network server	Yes	No

Shiva Corporation
155 Second Street
Cambridge, MA 02141
1-800-458-3550

Shiva

Registered trademarks: LaserWriter and Macintosh, Apple Computer, Inc.; TOPS, Sun Microsystems, Inc.; Hayes, Inc.; Trademarks: AppleTalk, AppleShare, Apple Computer, Inc.; SuperConnectivity and NetModem, Shiva Corporation.



Please circle 193 on reader service card.

By the time you read this, I suspect I will have made WriteNow 2.0 my word processor of choice.

tions ought to work, look, and feel. It is the word-processing disappointment of the decade as far as I'm concerned.

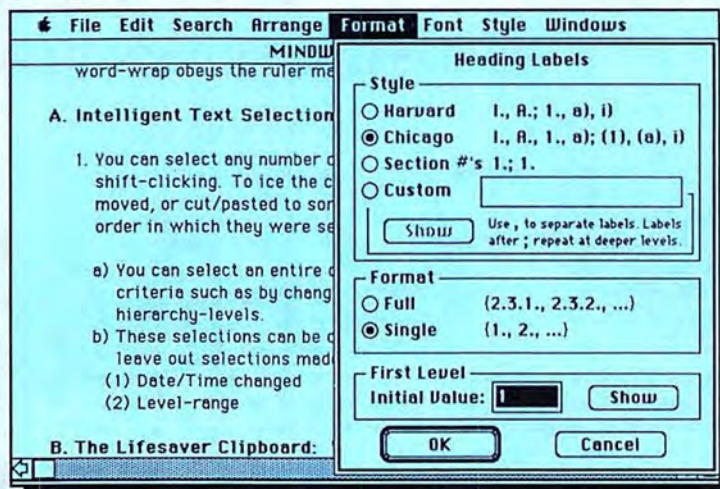
FOR STRUCTURED TEXT

If your job involves the preparation of bids, proposals, specifications, and technical documents, particularly where paragraph numbering and re-numbering is an issue, you probably want to take a close look at MindWrite. Its price is reasonable, its performance certainly acceptable, and its outlining is such a natural and integrated part of its personality that it is incredibly easy to use.

Beyond ease of use, MindWrite has two other features you'll love if your job involves preparing this class of documents. First, you can select any of several different paragraph numbering styles and the numbering sequence will be automatically maintained as you move paragraphs around from place to place in the document. Second, MindWrite keeps track of when contents are changed so that you can print documents with change bars in the margins indicating new material. This feature also permits you to print only those paragraphs that have changed since any date you specify. This comes in handy if, for example, you are looking at a draft dated June 13 and you want to see only the material that has changed since that time.

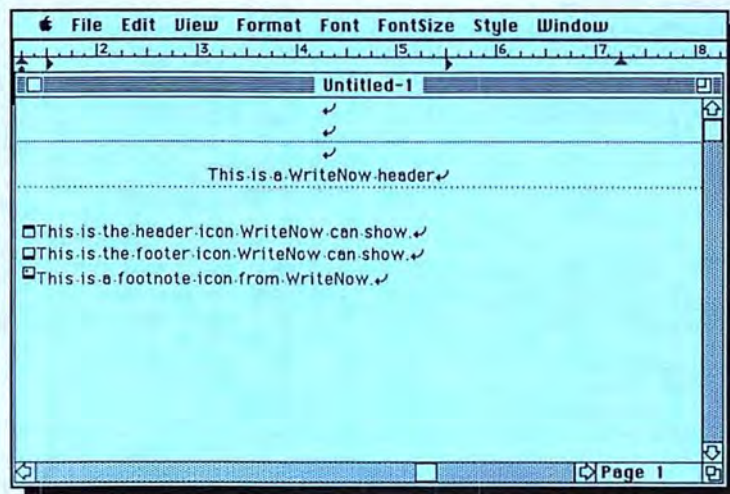
MindWrite also offers the widest range of flexibility of file formats of any of the Mac-based word processors. Its filters (programs through which you pass text to read or write other formats) are extensive and seem to work flawlessly. MindWrite Express

MindWrite



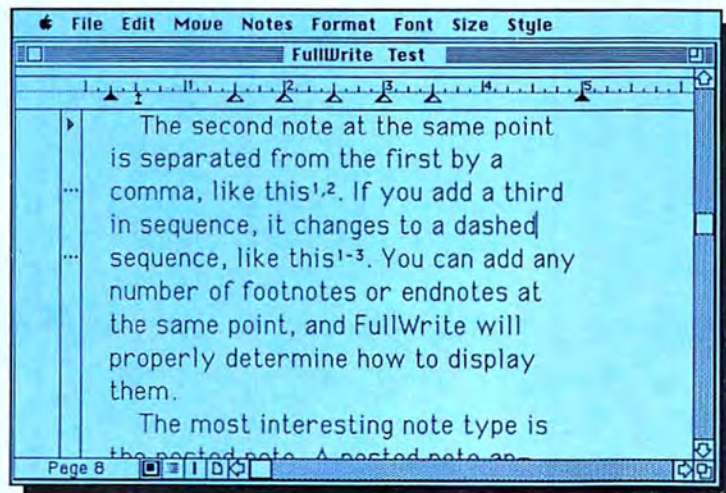
You can mark headings with diamonds, which are white if there are no subordinate levels or black if subordinates exist. These correspond to the minus (-) and plus (+) markers in ThinkTank and More. You choose or change your marking scheme at any time. If you wish, you can use any mix of fixed text, letters, and numbers, which MindWrite increments and updates for you.

WriteNow



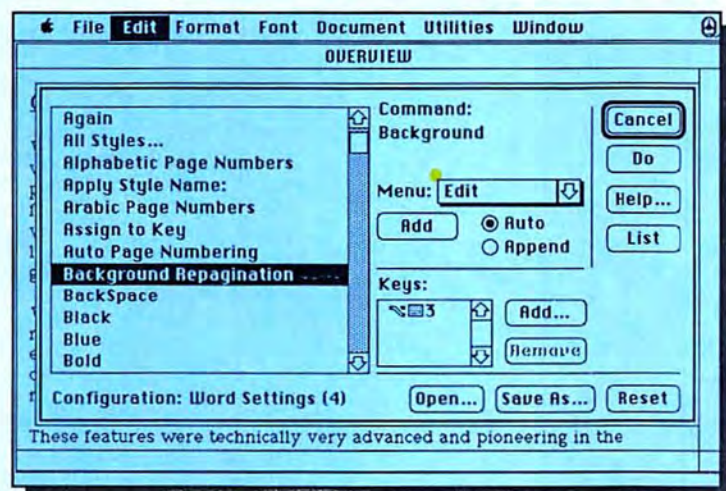
WriteNow can put icons for headers, footers, and footnotes on-screen, and it displays the actual header and footer on-screen as well. In general, WriteNow uses a sheet-of-paper metaphor, instead of the more familiar endless-roll metaphor; headers and footers are shown in their actual positions on each page.

FullWrite



FullWrite allows you to place notes to yourself within a document. When a note is posted, you will see a note icon in the menu bar on the left side of the screen. Other "noteworthy" features of FullWrite include its ability to support footnotes and endnotes. Footnotes will appear at the bottom of the page on which they're referenced, and endnotes will appear at the end of a given chapter or at the end of the book. You have the option to number them manually or to let the program do it automatically.

Word 4.0



Word 3.0 had customizable menus, but they were nothing compared with what you can do in Word 4.0. Using this dialog box, you can now move any menu command or dialog box option from any menu to any menu. If you want your fonts to appear on your File menu, you've got it. You can also assign Command-key equivalents to your choices. And if your Command-key combination duplicates a pre-existing one, you can delete the old combo and apply the new one to your choice.

We have a very novel way to hide up to 100MB of mass storage.

Put it behind your Mac Plus or SE. With a Jasmine BackPac™.

Unlike any other external mass storage device, BackPac hardly takes up any room at all. In fact, when equipped, your Mac will still fit in its carrying case. So it can travel with you wherever you go.

Or simply stay where you are. And let the world come to you with TalkBac™—BackPac's optional internal 2400 baud modem.

BackPac's even remarkably easy to install. There's no tricky wiring or exotic tools required. Which means you can be up and running with the preformatted BackPac within minutes.

And once installed, you'll barely know we're there. We run quiet and cool, too. And the same switch that turns on your BackPac turns on the Mac.

Available in 20MB, 45MB, 70MB, or 100MB capacities. BackPac comes with Symantec Utilities for Macintosh™ to prevent data loss and keep your hard disk running at peak performance. And Redux™ from Microseeds—the best back-up software written for the Macintosh. And then there's DriveWare™ which offers true SCSI partitioning. A feature which enables you to allocate distinct storage partitions while you manage everything from the control panel. Plus more than 9MB of public domain software and shareware.

So put your storage problems behind you. Call us toll free with your Visa, MasterCard, or American Express to

charge a BackPac with full, two-year warranty.

If it's not everything we say it is, return it in 30 days and we'll refund your money.

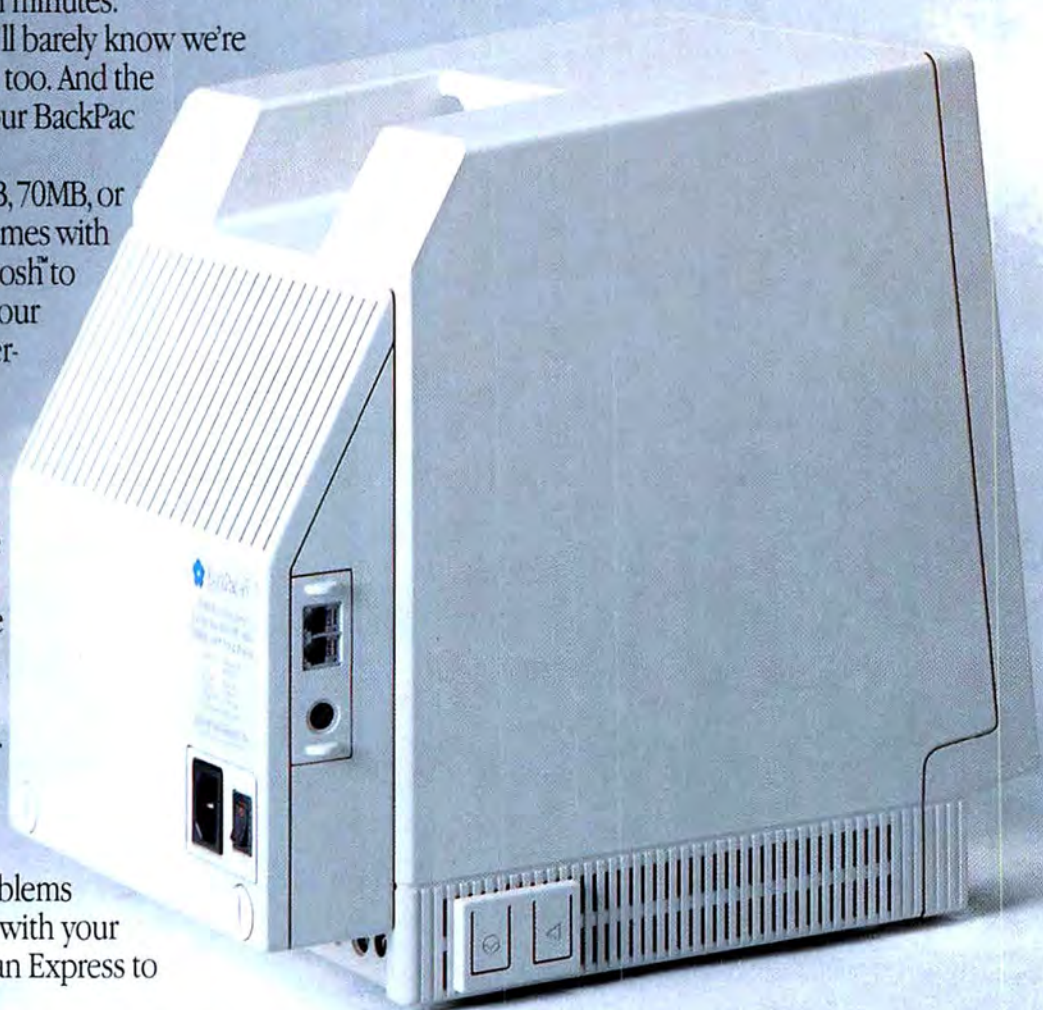
But we think you'll come to the same conclusion thousands of other Mac users have.

That the best storage solution is right here in front of you.



Jasmine

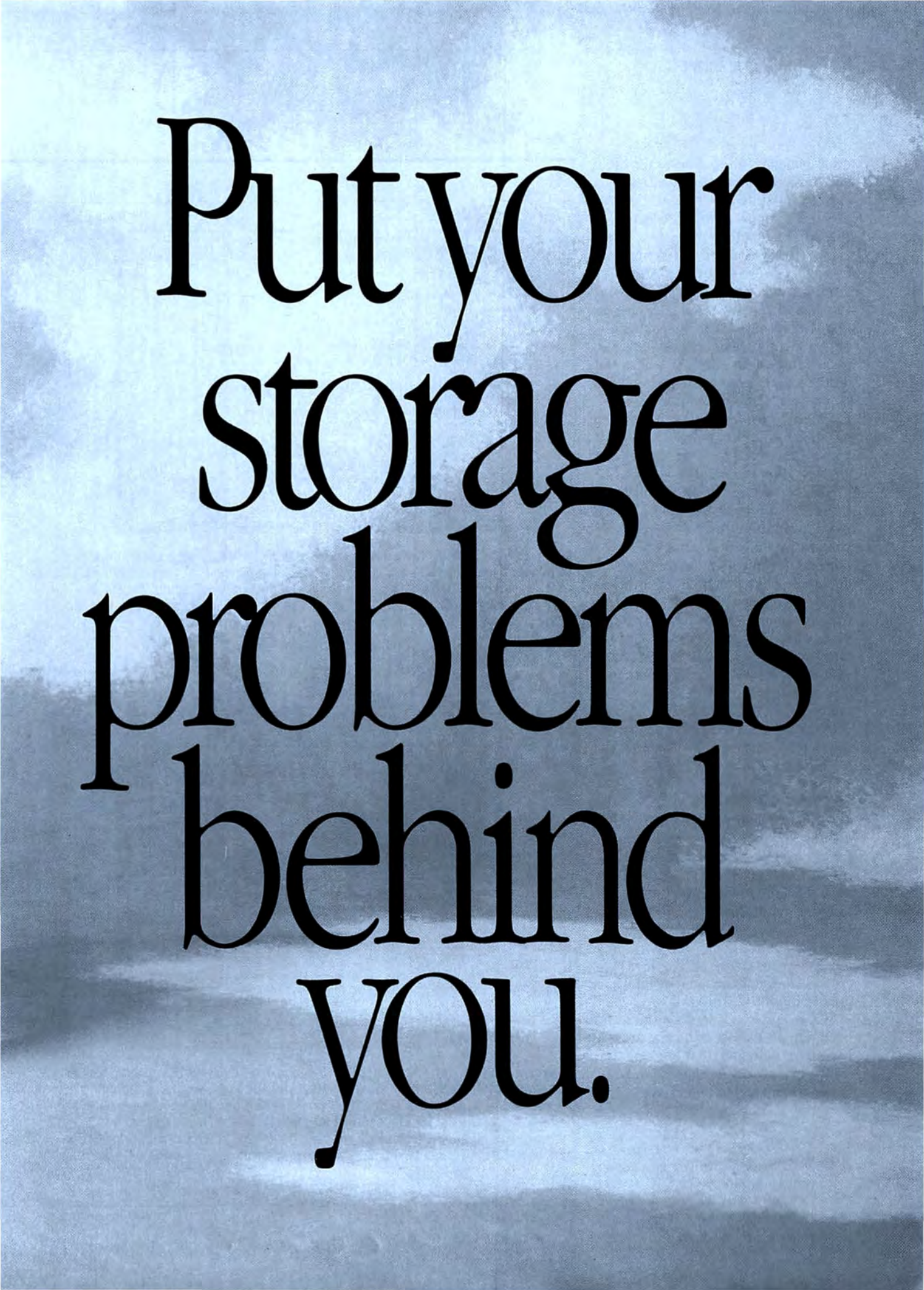
1-800-347-3228



Jasmine Technologies, Inc., 1740 Army Street, San Francisco 94124

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Please circle 58 on reader service card.



Put your
storage
problems
behind
you.

even includes filters for mainframe and minicomputer word processors.

If MindWrite has too little horsepower for you as a word processor for this kind of activity, the two other choices are Word and FullWrite Professional. Word's outlining features are traditional and reasonably powerful, though you must explicitly change line numbering rather than having it automatically maintained for you. (You must select the text where the order has changed and Word rennumbers the lines automatically.) FullWrite Professional's outlining capability is quite powerful, and if you have a need for extensive use of graphics, this is a good choice.

Another reason to choose FullWrite Professional for this category of work is the availability of posted notes. If you are writing proposals, specifications or technical manuals, you undoubtedly have a number of levels of review through which you must pass the document. With these special kinds of notes, each reviewer can attach the electronic equivalent of sticky yellow notes all over the document. You can then go into the document later, review the comments, and deal with the suggestions. This is an incredibly handy feature that I wish other word processors would adopt.

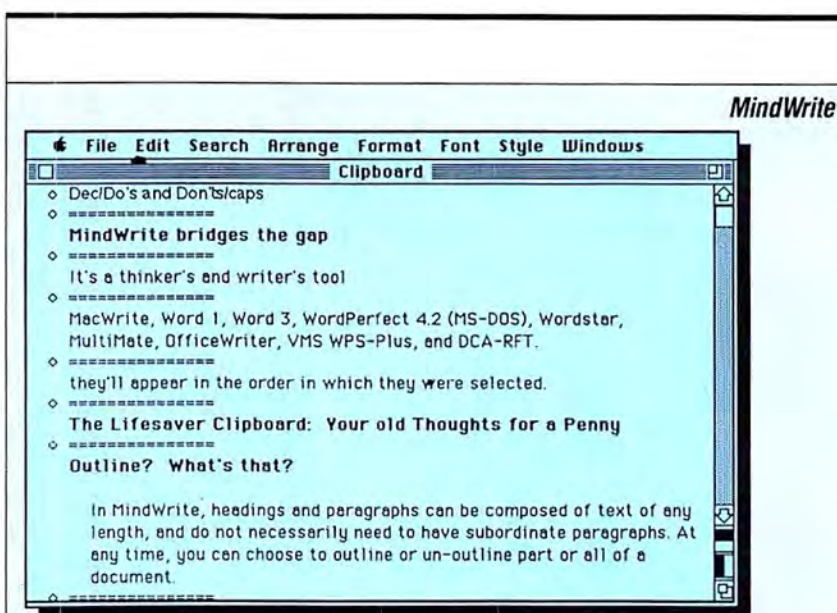
SOME FINAL THOUGHTS

I trust you have enough to think about now. Choosing a word processor for the Mac is something of an adventure these days. But if you know what kind of writer you are, you can use the information in this article to focus on those features that are likely to be most important to you. That step alone may help you focus on one or two word processors that you can then evaluate in greater depth.

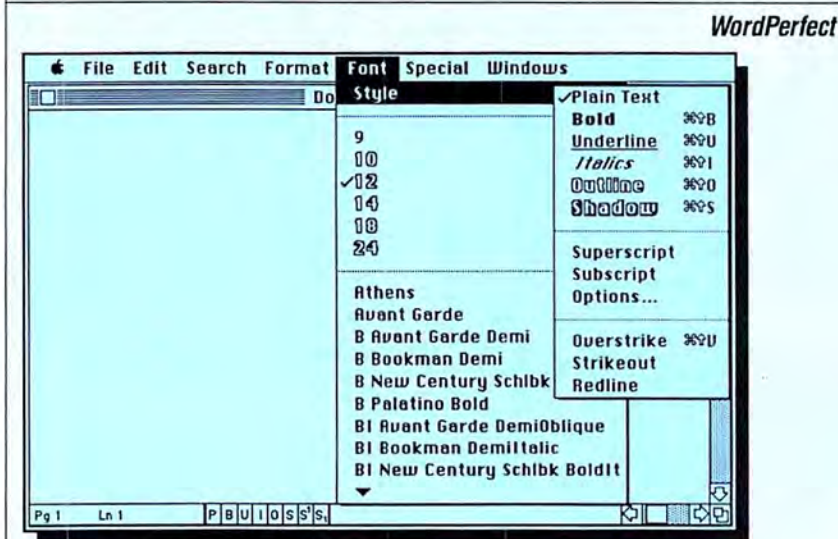
We've come a long way since the beginning. But those of us who are not beginners will find that making the right word processor choice can be of major benefit to our careers.

Happy processing.

FREQUENT CONTRIBUTOR DAN SHAFER CONSIDERS HIMSELF A "FUTUROLOGIST." HIS FAVORITE WORD PROCESSOR HASN'T BEEN WRITTEN YET.

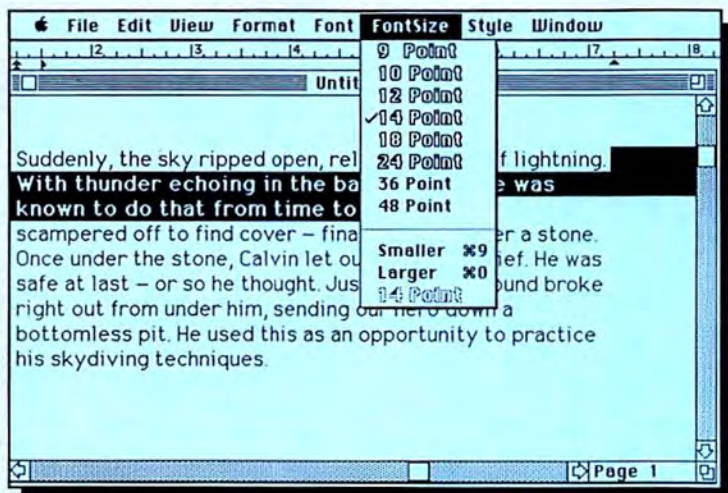


All text or graphics elements that were ever cut or copied during a session are retained. Opening the Clipboard reveals items from different cut/copy operations, each separated by a line of equals signs (=) that MindWrite installs. Beyond its normal duties, the Clipboard is treated like any other file. It can be viewed, scrolled-through, and edited. You can even save it as a named file.



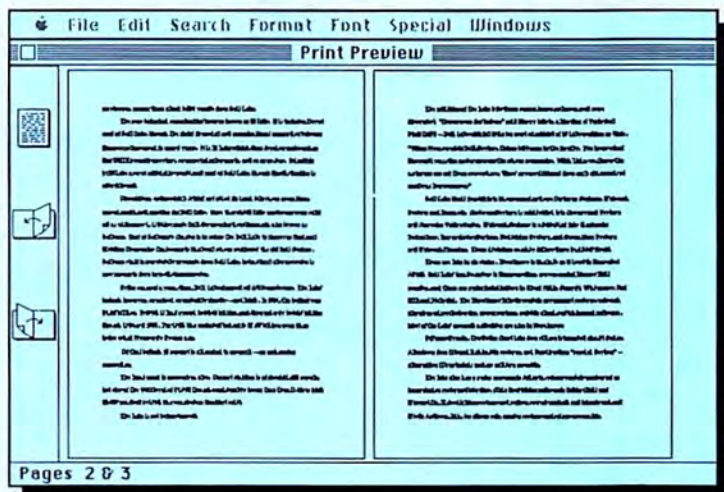
WordPerfect gives you two different ways to pick typefaces and type sizes. The way shown here gives you access to all your fonts and all available styles, but only a few sizes. By picking Character under the Format heading, you can scale the fonts to any size up to 127 points. For those of you with infinite flexibility, you can set type attributes using the Style menu shown here, the targets at the bottom of the screen, the boxes in the Format Character dialog box, or Command-key combinations.

WriteNow



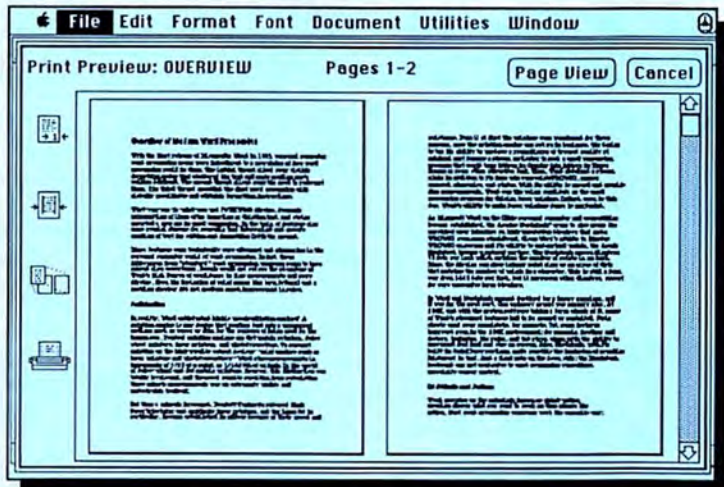
WriteNow lets you choose from only a few preselected font sizes, but you can choose increments of those sizes. You could do this by continually clicking on the proper menu entry, but you'll get old that way. Instead, press the appropriate Command-key combination until the cursor is about the right size. Then check the FontSize menu. Keeping fonts and font sizes in separate menus seems clunky.

WordPerfect



WordPerfect's Print Preview mode lets you look but not touch. In version 1.0.1, odd-numbered pages are always on the right side of a two-page spread — just like in real life. You can move forward or backward and zoom in on a section of the page, but that's it.

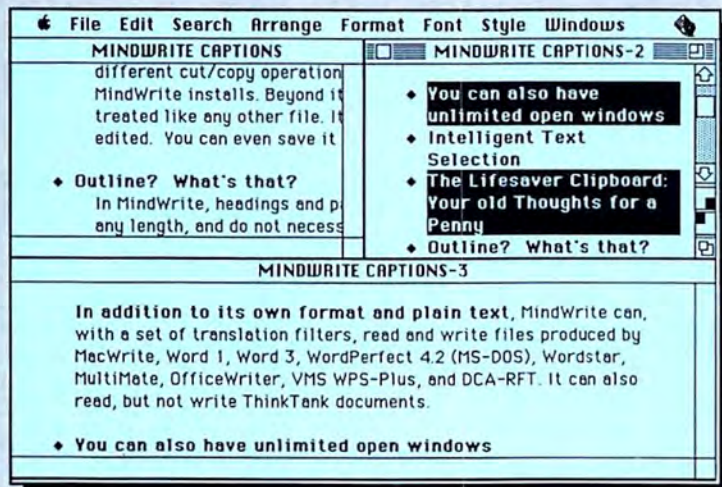
Word 4.0



Word's Page Preview option used to be the only way you could tell where you were on the page, but not anymore. Word 4.0 offers dynamic pagination as an option, so you can see where you are while you work.

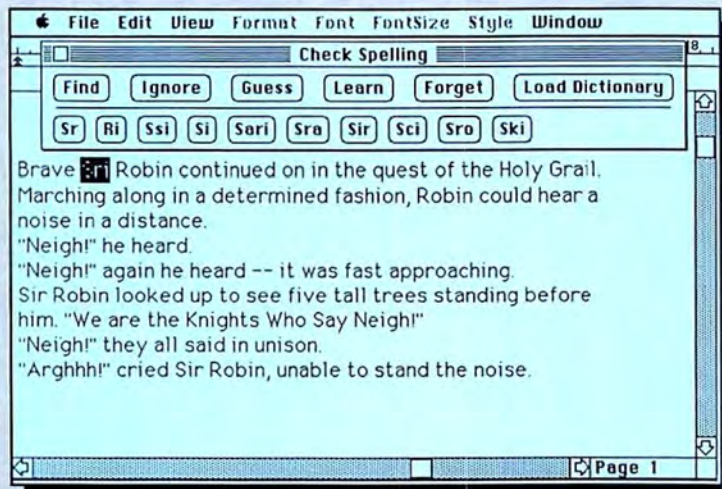
Page Preview mode is still primarily a viewing tool. You can change margins, position page numbers, reposition graphics, and print directly from Page Preview, but you can't edit the text. By selecting Page View, you can enter a true WYSIWYG mode that is fully editable.

MindWrite



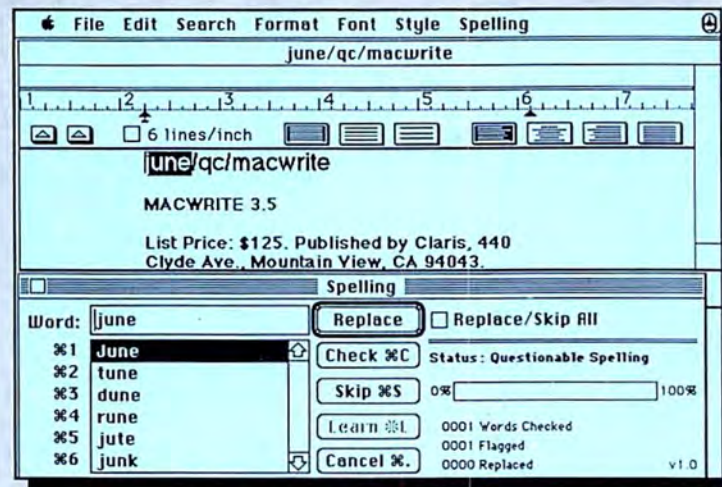
MindWrite's mouse method of arranging text is a grasping hand, with which you can drag paragraphs left or right to a different hierarchy level, or up or down to a new position in the document. When you release the mouse button, the hand reopens, and the selected text shifts to its new location. Unlimited open windows give you views into the same document. You can set up each window so that word wrap obeys the ruler margins or the window's current size. You can select any number of nonadjacent paragraphs by shift-clicking. If the selected paragraphs are moved or cut and pasted to some new location, they'll appear in the order in which they were selected.

WriteNow 2.0



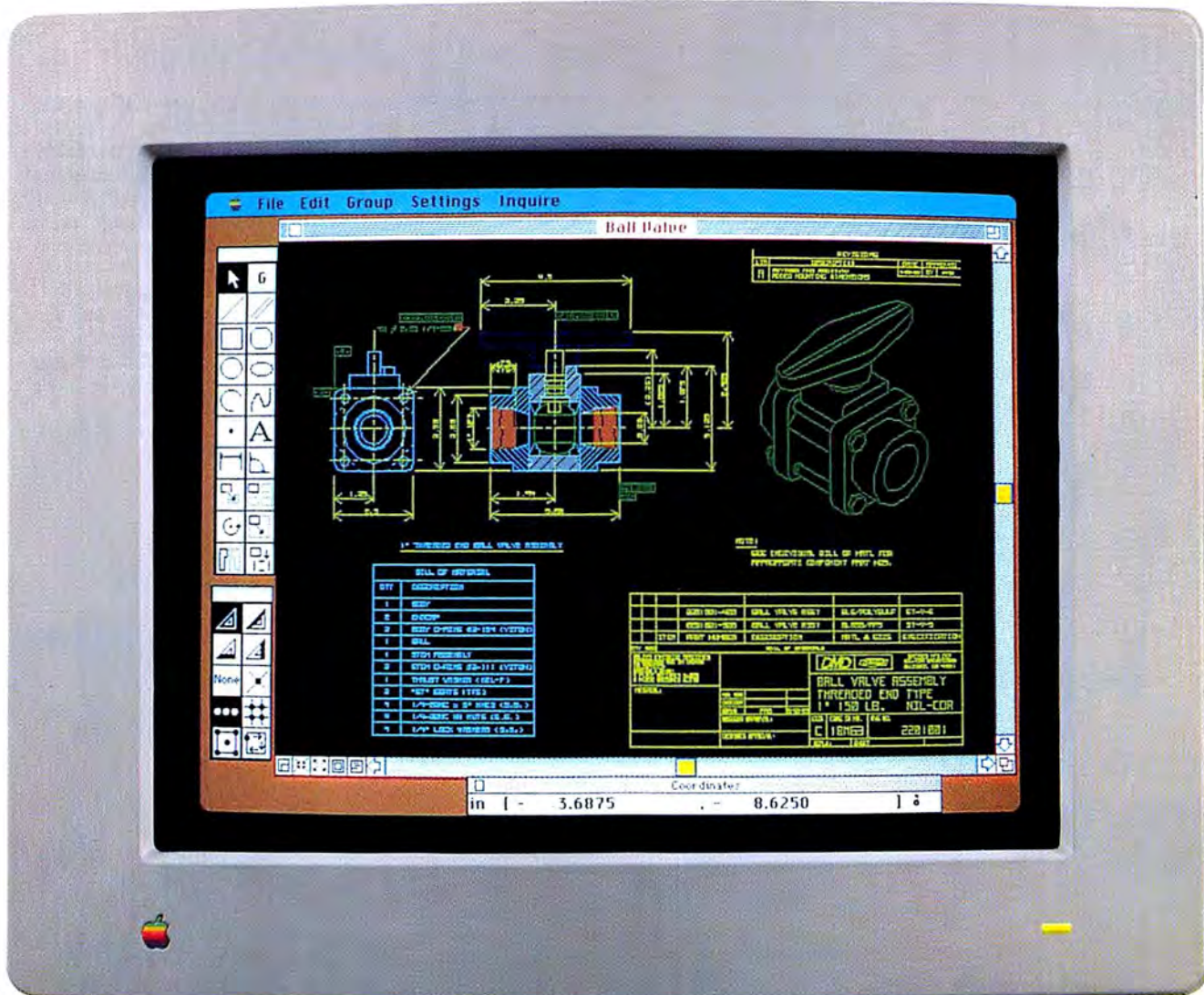
WriteNow 2.0 has an improved dictionary — it's faster because it checks an entire document only once. Checking a previously edited document covers only the sections you've recently changed. Its guessing abilities are such that it even knows to transpose letters in suspected words. Also, if you want to add a group of words specific to a certain field, you can select the group and use the Learn operation.

MacWrite 5.0



MacWrite 5.0 is the latest version of the original Mac word processor. Command-key equivalents and an integrated spelling checker (shown here) have been incorporated. Formatting is done with rulers, but the program still has too many limitations — a lack of speed, only one document open at a time — to be considered a serious writer's tool. Nonetheless, it's still easy to use, and for the occasional user, it might be enough.

The Mac Standard



Design Courtesy Dresser Manufacturing, Nil-Cor Operations, Alliance, Ohio.

Now Twice the Value

The toughest reviewers agree about VersaCAD:

"An excellent piece of work with all the features professional users need while maintaining the intuitive feel of the best Macintosh programs." —*MacUser*

"VersaCAD packs more power than any other Mac CAD program and makes that power easy to use." —*Macintosh Today*

"If you've gotten the impression that I like this product, you're right." —*Macworld*

And that was VersaCAD's first Macintosh release.

Now Version 2 doubles the value with . . .

■ 3D visualization, complete with color shading, wireframe and extrusion.

■ Powerful HyperCard utilities, including bill of materials, database, parametric design, and more.

■ Total customization, such as adding menus or running your own programs right inside VersaCAD.

■ A second system at half price to celebrate our 10th anniversary year.

Add VersaCAD's reputation for ease of use, free technical support and top value, and it's clear why VersaCAD is the Macintosh standard. For more information, see your authorized dealer today, or call (714) 960-7720.



Versacad Corporation, 2124 Main Street,
Huntington Beach, CA 92648.
A Company of Prime Computer, Inc.

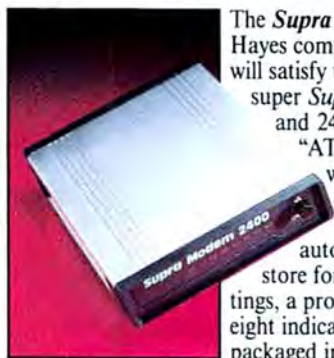
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Programs & Peripherals



Specials good through
November 30, 1988.

Supra Modem 2400 by Supra Corp.



The *Supra Modem 2400* is an economical Hayes compatible modem with features that will satisfy the most demanding users. This super *Supra Modem* can run at 300, 1200, and 2400 baud rates, supports Hayes "AT" commands and "S" registers, and works with all popular communications software. Some of the noteworthy extras include: auto dial/ auto answer, a programmable memory store for one phone number and user settings, a programmable-volume speaker, and eight indicator lights. All of these features are packaged into a very small, attractive case.

Supra Modem 2400 149.

Desk Accessory Programs

Affinity Microsystems Tempo II	89.	Greene, Inc. HyperDialer	26.
AlfiniFile	46.	QuickDex 1.4A	32.
Beyond Inc. Menu Fonts 2	32.	Imagine Software	
Borland SideKick V2.0	59.	Smart Alarms & Appointment Diary	35.
CE Software DiskTop 3.0	28.	Mainstay Think'n Time	61.
Deneba Software Comment 2.0	54.	Solutions, International Super Glue	52.
Electronic Arts Disk Tools Plus	31.	SmartScrap & The Clipper 2.0	52.
Exodus Software Retriever	59.	Symmetry HyperDA (Req. 512K)	38.

Languages

Borland Turbo Pascal	65.	Aztec MPW C or SDB	105.
Turbo Pascal Numerical Methods	65.	Microsoft	
Turbo Pascal Tutor	45.	Microsoft Basic Interpreter 3.0	61.
Consulair		Smethers & Barnes Prototyper	74.
Macintosh 68000 Development System	59.	Symantec Lightspeed C	95.
Insignia SoftPC	489.	Lightspeed Pascal	65.
Mainstay V.I.P. 2.5		T.M.L. TML Pascal II (Includes MPW)	79.
(Visual Interactive Programming)	109.	TML Source Code Library II	49.
Manx Aztec C	69.	Zedcore ZBasic	65.

StatView II by Abacus Concepts



StatView II is a supercharged data analysis/presentation graphics program for the Mac II (and the Plus or SE with the 68020/68881 processors). It has all the statistical features of its predecessor *StatView 512+*, but now boasts increased speed, and graphics capabilities that rival stand alone programs - including full color support. Analyze your data with a comprehensive battery of descriptive, comparative and multivariate statistics, as well as non-parametric tests. Present your data in a variety of formats, and easily add text and graphics. With *StatView II*, you will extract meaningful information from your data without delay!

StatView II 369.

MAC-101 Keyboard by DataDesk

If you are looking to replace your Mac's keyboard, the *MAC-101* by DataDesk is the way to go. It comes in an ADB version for the Mac SE and II, and a non-ADB version for the Mac 512 and MacPlus. The positive tactile, firm feel 101 includes a full numeric keypad, 15 function keys, 6 page control keys, and a T-style cursor pad. Keyboard status indicator lights let you know when everything is going smoothly. Includes 101-Keys desk accessory software, a powerful macro utility which allows you to exploit the full power of the function keys with almost any Macintosh application.



MAC-101 Keyboard (Specify ADB or non-ADB) 139.

Utility Software

ALSoft Disk Express	35.	Read-It! TS (For ThunderScan)	79.
Font/DA Juggler Plus	42.	Read-It! O.C.R. 2.0	
Berkeley System Design		(For Image Scanners)	199.
Stepping Out II	54.	PCPC HFS Back-Up	28.
Beyond Inc. Fore Runner	32.	Silicon Beach Software	
CE Software		Silicon Press	41.
QuickKeys (Macro Program)	54.	Software Power	
Central Point Software		Power-up Disk Optimizer	39.
Copy II Mac (Includes MacTools)	20.	SuperMac Software SuperSpool 5.0	54.
Emerald City Software LaserTalk	187.	SuperLaserSpool 2.0	82.
Fifth Generation Systems		Diskfit 1.4	54.
FastBack For The Macintosh	54.	Sentinel 2.0	155.
Suitcase or Power Station	37.	Symantec MacSQZ!	49.
Ideaform Disk Quick V2.10	27.	Symantec Utilities for Mac (S.U.M.)	59.
Infosphere Liaison	129.	Williams & Macias Disk Finder	29.
Microlytics, Inc. GOfier	45.	myDiskLabeler w/ Color	31.
Microseeds Redux	65.	myDiskLabeler w/ LaserWriter Option	34.
Olduvai Software		Working Software, Inc.	
Icon-It! or MultiClip	39.	Findswell 2.0 (Document Finder)	36.

Communications Software

Compuserve		Hayes Smartcom II 3.0	88.
Compuserve Starter Kit	24.	Peripherals Computers & Supplies	
Grolier On Line Encyclopedia	32.	VersaTerm	69.
Compuserve Navigator	45.	VersaTerm-Pro	199.
DataViz MacLink Plus with Cable	145.	Software Ventures	
Dow Jones Desktop Express	95.	Microphone II (Includes Glue)	225.
FreeSoft Red Ryder V10.3	55.	Traveling Software LAP-LINK	85.

to Polish Up Your Mac...

Wedge XL30+ & XL45+ by Cutting Edge

These two compact, easy to install hard disk drives are ideal for the individual or small business. Each drive is shipped preformatted and with Apple's System software, including MultiFinder and Backgrounder laser printer spooling software. Just unpack it, plug it in, and you're ready to compute! The **Wedge XL30+** and **XL45+** feature automatic head park and lock on powerdown, easy daisy chaining, external address switches, rapid (23 ms) access times, and a one-year manufacturer's warranty. Quiet fans, small size, and a 6-foot SCSI cable let you take your data anywhere. Both drives are packed with manufacturer-tested backup software that makes data protection a breeze!



Wedge XL30+ 629.
Wedge XL45+ 829.

Components General Ledger by Satori



Components General Ledger is comprehensive, flexible accounting software for users who demand power and ease of use in one package. Custom fit, easily defined data input and report generation support gives you complete control over what goes in and what prints out. You create the account numbering system, and the special entry and regular journals - which can be manual offset or automatic offset types. It's easy to take advantage of **Components General Ledger** full drawing toolbox, PostScript support, and print preview function to improve the effectiveness of printed materials! **Components General Ledger** interfaces directly with Satori's Legal Billing II and Project Billing software to support your billing department easily and effectively!

Components General Ledger 385.

Cutting Edge 800K Drive by Cutting Edge, Inc.



The **Cutting Edge 800K Drive** features an LED in-use light, a manual eject mechanism, and a compact platinum case. It's compatible with the old and new ROMs so you can use it on a standard Mac 512K, a MacPlus, or a Mac SE. The **Cutting Edge 800K Drive** has a MTBF rating of over 11,000 hours and offers advanced technology and design at an economical price.

Cutting Edge 800K Drive 175.

Spelling Coach Professional by Deneba

Spelling Coach Professional is much more than just a spelling checker, it's a complete reference system. It can spell check your document against Merriam Webster's 9th, Legal, and Medical dictionaries which together contain a total of 158,000 words. You also have instant access to a 245,000 synonym thesaurus, and, the most amazing feature of all: a complete set of definitions. It supports both interactive and batch checking, and the dictionaries can be accessed through a desk accessory or stand alone speller. Powerful and accurate hyphenation routines are available on demand. Easily add your own words to the dictionary for even more power!



Spelling Coach Professional 105.

Studio/8 by Electronic Arts

Professional artists and amateurs alike will enjoy the power that **Studio/8** reveals in the Mac II. **Studio/8** is the first full-color, full-feature user friendly paint program designed specifically for artists. It features versatile airbrush, paintbrush, icon-based drawing tools, and color routines that you can customize. You'll be rid of hassles with custom typesetting because **Studio/8** supports full text-editing features in the same text box and allows you to dynamically resize and redefine blocks of type, plus shear, rotate, and skew text. **Studio/8** comes bundled with on-line help, a slide show program with built-in production features, a free font disk, and a library of backgrounds and textures.



Studio/8 309.

Positively A Plus



800/832-3201

Positively A Plus!

Disk Drives/Hard Disks/Upgrades

Applied Engineering	MacSnap 524E (512E to 1MB)	265.
MacRAMS (1 MB SIMMS Mac+, SE, II)	MacSnap 524S (512E to 1MB w/SCSI)	409.
AST Research	MacSnap 548 (512K to 2MB)	599.
Mac286 Co-Processor (Mac II)	MacSnap 548E (512E to 2MB)	585.
Central Point	MacSnap 548S (512E to 2MB w/SCSI)	649.
Central Point 800K External Drive	MacSnap Plus 2 (MacPlus to 2MB Non Expandable)	475.
CMS PRO-II Series 60-II/1	MacSnap 2SE or 1024 Option (1 MB Acc. or MacII Memory Exp.)	475.
Compact Series SC35 (Mac+/SE/II)	SCSI Interface/Port	129.
Compact Series SC45 (Mac+/SE/II)	MacSnap Toolkit (torx driver, opener & grounding set)	15.
SDSeries MacStack SD20 (Mac+/SE/II)	Everex Emac 20D (20Mb Hard Disk)	520.
SDSeries MacStack SD30 (Mac+/SE/II)	Emac 20 Deluxe	585.
SDSeries MacStack SD60 (Mac+/SE/II)	Personal Computer Peripherals	
PRO-SE Series 30SE/1 or 30SE/R	Beige or Platinum Color. Optional Built-In Modems Available.	
PRO-SE Series 45SE/1 or 45SE/R	MacBottom HD-21 (20+MB SCSI Hard Disk)	659.
60MB Tape Backup (Mac+/SE/II)	MacBottom HD-32 (32MB SCSI Hard Disk)	699.
Cutting Edge	MacBottom HD-45 (45MB SCSI Hard Disk)	859.
Cutting Edge 800K Drive	MacBottom HD-70 (70MB SCSI Hard Disk) Plat only	999.
Cutting Edge Wedge XL 30 Plus SCSI Hard Drive	Rodime Rodime 20 Plus Ext.	629.
Cutting Edge Wedge XL 45 Plus SCSI Hard Drive	Rodime 45 Plus (Ext. 45MB SCSI)	939.
Cutting Edge XL 30 Internal Hard Drive	Rodime 450RX (Int. 45MB Mac SE/II)	829.
Cutting Edge XL 45 Internal Hard Drive	Rodime 100 Plus (Ext. 100MB SCSI)	1169.
Dove Computer Corporation	Rodime 140 Plus (Ext. 140MB SCSI)	1319.
8020 Accelerator Boards for Mac SE	Rodime 1000 RX (Int. 100MB MacII)	1045.
MSE 1 (16 Mhz)		
MSE 2 (16 Mhz w/1MB)		
MSE 3 (16 Mhz w/Math Co-processor)		
MSE 4 (16 Mhz w/1MB and Math Co-processor)		
MacSnap 524 (512K to 1MB)		

Printers & Digitizers

AST Research TurboLaser P/S	3559.	Seikosha SP1000 (Imagewriter Comp.)	229.
TurboScan (Sheetfeed model)	1199.	Summagraphics Bit Pad Plus	335.
TurboScan (Flatbed model)	1329.	ThunderWare	
Koala Technologies Corp.		ThunderScan V4.0 with Power Port	199.
MacVision 2.0 (Digitizer)	225.	Mac II Power Accessory	42.
Kurita IS ADB Tablet	259.	Video Technology	
Cordless 4 Button Cursor	99.	Laser 190 A (Imagewriter Compatible)	249.

Accessories

Abaton ProPoint (ADB Mouse for Mac SE & Mac II)	99.	Tilt/Swivel	22.
Asher Engineering		Apple Security Kit	33.
Turbo Trackball (Mac & Mac+ or Mac SE & Mac II)	69.	Antiglare Polarizing Filter	33.
CH Products		Modem/Fax Protector 10	15.
Mac II Plus: Quad or ADB	65.	Modem/Fax Protector 20	29.
Mirage: Quad or ADB (Turns Joystick Into Mouse)	39.	Power Tree Surge Suppressors (10, 20, or 50)	Call
Curtis Manufacturing		Printer Muffler Stand (80 & 132)	21.
Emerald-Surge Suppressor-SP-2	36.	Printer Muffler 80	43.
Ruby-Surge Suppressor-SPF-2	55.	System Saver Mac (Beige or Platinum)	64.
Cutting Edge Cutting Edge EADB-105 Keyboard (Mac SE & Mac II)	135.	Super Base	34.
DataDesk		System Saver SE	59.
MAC-101 Keyboard/Beige (128k/512k & MacPlus)	Special 139.	Masterpiece Mac II	105.
MAC-101 ADB Keyboard/Platinum (Mac SE & Mac II)	Special 139.	New Turbo Mouse (Reg. or ADB)	109.
Ergotron Mousecleaner 360°	15.	Mobius Fanny Mac QT (Beige or Plat.)	65.
MacTilt or MacTilt SE (Platinum Color)	68.	Mouse Systems A+ Mouse (MacPlus)	65.
Farallon MacRecorder Sound System (Mac SE or Mac II)	145.	A+ ADB Mouse (Mac SE/Mac II)	85.
Impulse Audio Digitizer w/soundware	149.	Moustrak MousePad 7"x9" Size	8.
I/O Design Mac Luggage in Navy		MousePad 9"x11" Size	9.
Macinware Plus Carrying Case	64.	Orange Micro Grappler C/Mac/GS	84.
Macinware SE Carrying Case	76.	Grappler L/Q	98.
Imageware II Carrying Case	49.	Ribbons	
HDware	54.	Available in Black, Blue, Brown, Green, Orange, Purple, Red, Yellow, Silver & Gold	
Kalmar Designs		ImageWriter Ribbon	4.
Teakwood Roll-Top Disk Cases: Micro Cabinet (holds 45 disks)	14.	ImageWriter Black 6-pack	20.
Double Micro Cabinet (holds 90 disks)	23.	ImageWriter Rainbow Pack (6 Colors)	20.
Triple Micro Cabinet (holds 135 disks)	32.	ImageWriter II-Four Color Ribbon	9.
Kensington External Disk Drive Cover	8.	ImageWriter LQ Black	17.
Extra Long ADB Keyboard Cable	25.	ImageWriter LQ Four Color	20.
Macintosh II Stand	20.	Seikosha Ribbon Black	6.
Macintosh II Monitor Extension Cable	33.	Silicon Comforts MacChimney (Very Effective Cardboard Laminate Convection Cooling Device)	16.
Mouse Pocket (Reg. or ADB)	8.	Smith & Bellows	
Mouseway (Mousepad)	8.	Mahogany Disk Case (holds 96)	30.
ImageWriter or ImageWriter II Cover	9.	Sopris Softworks	
Macintosh Plus/SE Dust Cover	9.	High Trek Carry Cases - Platinum Gray, Navy	49.
Macintosh SE w/extended Kybd Cover	9.	Imagewriter II Case	59.
Mouse Cleaning Kit w/Pocket	17.	Macintosh Plus, SE w/Standard Kybd	69.
Disk Drive Cleaning Kit	20.	Macintosh SE & Extended Kybd Case	45.
		Targus (Canada)	59.
		Imagewriter II Carry Case Blk.	45.
		Macintosh Plus Carry Case Blk.	59.
		Deluxe MacPlus-XXB Blk.	65.

Blank Media

Single Sided 3 1/2" Diskettes	Centech 3 1/2" DS/DD Color Disks (10)	19.
Bulk (Sony) 3 1/2" SS/DD Disks (10)	Sony 3 1/2" DS/DD Disks (box of 10)	18.
Sony 3 1/2" SS/DD Disks (box of 10)	Fuji 3 1/2" DS/DD Disks (box of 10)	19.
Double Sided 3 1/2" Diskettes	Maxell 3 1/2" DS/DD Disks (box of 10)	20.
BASF 3 1/2" DS/DD Disks (box of 5)	Verbatim 3 1/2" DS/DD Disks (box of 10)	19.
Bulk (Sony) 3 1/2" DS/DD (10)	3M 3 1/2" DS/DD Disks (box of 10)	20.

Modems

Abaton InterFax 12/48	415.	Novation	
Anchor Automation		Novation Parrot 1200	109.
MacPac 2400E w/software & cable	179.	Practical Peripherals	
AST		Practical Modem 1200SA	109.
AST-2x2400 (MacPlus/SE/II)	625.	Practical Modem 2400SA	189.
Epic		MacCommPack	
Epic 2400 Int. SE	315.	(2400SA w/Microphone & Cable)	249.
Epic 2400 Int. Mac II	315.	Prometheus	
Epic 2400 Mini Ext. (Hayes Compatible)	155.	Promodem 2400M Ext. (Software & Cable)	199.
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Emac 2400 Baud	225.	Supra Corporation	
Hayes Microcomputing		Supra Modem 2400	Special 149.
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Smartmodem 2400	449.	Courier 1200 (Hayes Compatible)	199.
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Apple Computer HyperCard	44.	Focal Point & Business Class Bundle	55.
Ashton Tate dBASE Mac 1.0	295.	Microsoft Microsoft File	119.
Blythe Software Omnis 3 Plus Express	275.	Nantucket Software McMax	175.
Borland Reflex Plus	165.	Nordic HyperCONTROL	42.
Claris FileMaker II	Call	Odesta Double Helix II	339.
Ducsoft, Inc. Applications & Routines for 4th Dimension Vol. 1	86.	GeoQuery or DataDesk Professional	295.
Fox Software Fox Base Plus	214.	Park Row Incorporated Publish or Perish	28.
Fox Base Unlimited	259.	ProVUE Development OverVUE 2.1E	149.
Ideaform Hyper Book Maker	31.	Software Discoveries RecordHolderPlus	45.
		Telegraphics Hypertutor	30.

Business Software

Abacus Concepts		Mainstay Capture	42.
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StatView SE+ Graphics	229.	Micro Planning Software	
Access Technology Trapeze 2.1	159.	Micro Planner 6.0	349.
Ashton Tate Full Impact	249.	Microsoft Microsoft Excel 1.5	249.
Borland Eureka! The Solver	129.	Microsoft Works 1.1 with Spellswell	189.
BrainPower ArchiText	185.	Owl International Guide 2.0	119.
StatView 512 Plus	175.	Guide Envelope System	99.
Math View Professional	145.	Satori Software	
DataScan	119.	Bulk Mailer 3.2	79.
Bravo Technologies MacCalc	79.	Bulk Mailer Plus	195.
Chang Laboratories		Components GL	Special 385.
C.A.T. Contacts*Activities*Time	229.	Legal Billing	369.
Claris MacProject II 2.0	395.	Project Billing	439.
Cognition Technology MacSMARTS	135.	Select Micro Systems, Inc.	
Legisoft/Nolo Press WillMaker 3.0	35.	Exstatis or MapMaker	219.
Lundeen & Associates		Shana Enterprises Fast Forms	89.
WorksPlus Commands	60.	Synex Mac Envelope	19.
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Word Processors & Desktop Publishing

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Mind Write Express	149.	Microsoft Microsoft Word 4.0	249.
Allan Bonadio Associates		Microsoft Write 1.0	113.
Expressionist 2.0	79.	Postcraft International, Inc. Laser FX	115.
Aldus Corporation PageMaker 3.0	475.	Quark, Inc. QuarkXPress V2.0	499.
Ashton Tate FullWrite Professional	275.	Symantec More 1.1C (Color Version)	175.
Claris MacWrite 5.0	119.	Symmetry Acta V2.0	42.
Letraset Ready, Set, Go! 4.5	279.	T/Maker Company WriteNow V2.0	105.
Letra Studio	369.	Word Perfect Corporation Word Perfect	185.

Spelling & Grammar Checkers

Aegis Development		Electronic Arts Thunder! 1.23	30.
Doug Clapp's Word Tools	42.	Lundeen & Associates	
A.L.P. Systems MacProof 3.0	115.	WorksPlus Spell 1.1	46.
Deneba Software		Microlytics, Inc.	
Coach Merriam Webster's Thesaurus 2.0	36.	Word Finder (Synonym Finder)	35.
Spelling Coach 3.0		Sensible Software Sensible Grammar	55.
(Webster's/Medical/Legal/Hyphenation)	54.	Working Software, Inc. Spellswell 2.0	42.
Spelling Coach 3.0 Professional	Special 105.	Lookup (Makes Spelling Suggestions)	29.

Accounting Packages

Aatrix Software Aatrix Payroll V3.0	115.	Insight Expert GL, AR, or AP	479.
Aatrix Payroll Plus	169.	MECA Managing Your Money	129.
Bedford Software Simply Accounting	219.	Migent In House Accountant	119.
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New Enhanced Version III Modules!		Dollars & Sense 4.0	81.
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Dac Software Dac-Easy Light	45.	(GL/AR/AP/INV)	159.
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Layered Insight One Write	185.	MacMoney 3.0 (Enhanced Version)	62.

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Imagine Software		NetModem V2400	479.
Multi-User Appointment Diary with Smart Alarms	85.	Net Serial X232	309.
Infosphere		NetBridge	309.
MacServe (Network Software)	158.	SuperMac Software Acknowledge	349.
LaCie Silverserver	99.	Multi-User SuperLaserSpool	199.
Microsoft Microsoft Mail 1-4 users	195.	Symantec InBox-MacConnection	79.
Nuovotech		InBox-Starter Kit V2.0	
TurboNet 128/512k or TurboNet Plus	27.	(3 Personal Connections)	199.
Olduvai Software Clip Share	109.	TOPS Tops 2.0 or Net Print	119.
Font Sharer	149.	Tops Repeater	129.
		Tops Teleconnector Din8 or DB9	39.

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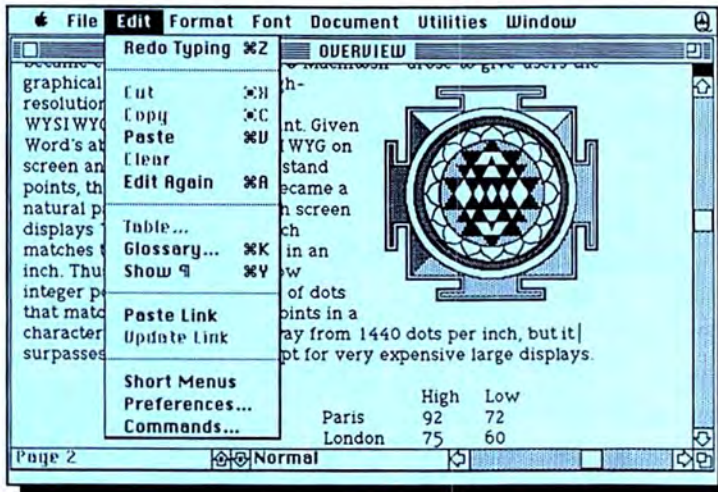
3G Graphics Images with Impact!	59.	Dreams	315.
ABA Software Draw It Again Sam 2.0	89.	Laserware Laserpaint Color II	359.
Adobe Systems Adobe Illustrator 88	325.	Letraset ImageStudio 1.5	279.
Adobe Fonts (Various volumes)	Call	Ready Set Show	189.
Aldus Freehand	379.	Macromind Videoworks II	118.
Altys Corp. FONTastic Plus 2.0	59.	Videoworks II Accelerator	125.
Fontographer 2.2	239.	Videoworks II Driver for Hypercard	60.
Ashton Tate Full Paint	69.	Meta Software Design/2.0	199.
Broderbund Print Shop	36.	Micro Illusions Photon Paint	179.
Casadyware Fluent Fonts 2.0 (2-Disk Set)	26.	Micro CAD/CAM MGMStation	685.
Fluent Laser Fonts Vol. 1-22 (ea)	45.	Micro: Maps	
CE Software Calendar Maker 3.0	28.	MacAtlas Paint 2.0 (MacPaint Format)	45.
Claris MacPaint 2.0	119.	MacAtlas Hyper Atlas	64.
MacDraw II 2.0	309.	MacAtlas Professional	
Cricket Software Cricket Draw	169.	(PICT/MacDraw Version)	129.
Cricket Graph	119.	Microsoft Microsoft PowerPoint 2.0	249.
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Educational/Creative Software

Baron's Baron's SAT	35.	Venture's Business Simulator	47.
Bible Research The Word (KJV or NIV)	165.	Deluxe Music Construction Set V2.0	61.
Bogus Productions Studio Session	49.	Ist Byte/Electronic Arts	
Bright Star Technology Alphabet Blocks	32.	Kid Talk, Speller Bee,	
Broderbund Jam Session	30.	First Shapes, or Math Talk	32.
Sensei Geometry, Calculus or Physics Type!	60.	Great Wave Software KidsTime	26.
Where in the World is Carmen SanDiego?	31.	Learning Company Reader Rabbit	33.
Coda Mac Drums	35.	Mindscape Perfect Score SAT	
Davidson & Associates Speed Reader II	39.	w/The Perfect College	46.
Math Blaster or Word Attack!	27.	Nordic	
Electronic Arts Mavis Beacon Typing	36.	MacKids Educational Programs (each)	28.
		Simon & Schuster Typing Tutor IV	35.

Game Software

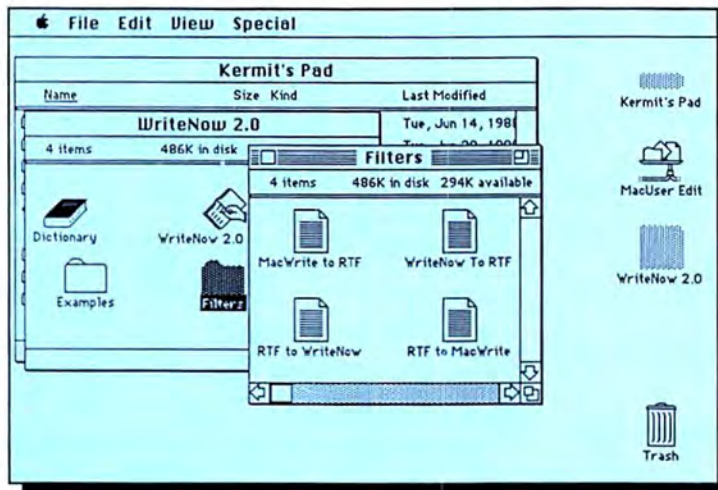
Access World Class Leader Board Golf	34.	Firepower	16.
Accolade Hard Ball	23.	Universal Military Simulator	30.
4th & Inches	24.	Might and Magic	37.
Artworx Bridge 5.0	22.	Sky Travel	45.
Avalon Hill Mac Pro Football	30.	Microsoft Flight Simulator 1.02	32.
Baudville Award Maker Plus	29.	Micro Sports MSFL Pro Draft	26.
Broderbund Ancient Art of War		MSFL Pro League Football	32.
or Ancient Art of War at Sea	27.	Miles Computing Inc. Down Hill Racer	24.
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Poster Maker Plus	39.	or The Fool's Errand	27.
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P51 Mustang or Ferrari Grand Prix	32.	Crossword Magic or Citadel	30.
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Roulettemaster or BlackJack Ace	28.	King Of Chicago or Shadowgate	30.
Electronic Arts Ogre	20.	Defender of the Crown, Colony	
ChessMaster 2000	28.	or The Uninvited	30.
Chuck Yeager Flight Simulator		Practical Computer Applications	
or Life & Death	36.	Lunar Rescue	30.
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Seven Cities of Gold, SkyFox, or		Sierra On-Line Leisure Suit Larry	23.
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EPYX Winter Games		Police Quest	30.
or Sub Battle Simulator	24.	Silicon Beach Software	
Greene, Inc. Crystal Quest	27.	Dark Castle or Apache Strike	27.
Crystal Quest w/ Critter Editor	42.	Beyond Dark Castle	27.
Hayden Software Sargon IV	29.	Simon & Schuster	
H.J.C. Software, Inc.		Star Trek (The Kobayashi Adventure)	24.
Air Traffic Control Simulator	35.	Star Trek (The Promethean Prophecy)	24.
Infinity Software, LTD.		Sir-Tech Mac Wizardry	35.
Go or GrandSlam Tennis	27.	Sphere, Inc. Tetris	23.
Infocom Leather Goddesses of Phobos	24.	GATO, Orbiter, Falcon, or Pt-109	26.
Beyond Zork, Zork Trilogy or QuaterStaff	30.	Solitaire Royale	19.
Hitchhiker's Guide to The Galaxy	18.	Studio Zero Orbital Mech	35.
Zork Zork, Show Gun or Journey	42.	XOR Software NFL Challenge	64.
MediaGenie Shanghai or Jinxter	24.	Pro Challenge or Basketball Challenge	30.



Word 4.0

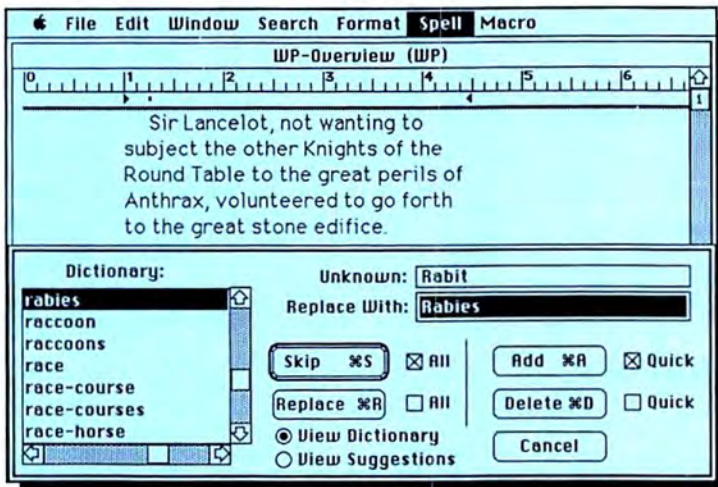
Since Word 4.0 now incorporates text flow around graphics, your need for page-layout programs may decrease.

A new feature in Word 4.0 is its ability to hot link to programs such as Excel and Microsoft Mail. Using this option, you can import Excel data directly, using the Paste Link command, and the documents will remain linked. If you change the spreadsheet, the next time you open your Word document Word will prompt you to update the data to reflect your changes, using the Update Link command.



WriteNow

With its RTF (Rich Text Format) capabilities, WriteNow allows you to import and export documents into other word-processing and page-layout packages — MacWrite, Word, Write, Works, PageMaker, Ready,Set,Go!, Quark XPress, and Acta Outliner — without losing such flags as boldfaced text, italics, and fonts.



Works 2.0

The word-processing capabilities of Works 2.0 have been improved to include a 60,000-word spelling checker. As with the dictionaries of other packages, you can customize your own. Creating multiple-column mailing labels or customized reports is now easier thanks to Works' enhanced mail-merge capabilities. Mail-merge can be achieved from the Print or Open document options.



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Modems

Beverly Hills

External 1200 Baud.....\$99
External 2400 Baud.....\$189

Everex

2400 with cable\$219

DCA

Mac Irma-Mac II or SE\$795

SE Silencer

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internal Fan
Keeps it cool & quiet\$39⁹⁵



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Data Desk Keyboard

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keys, separate numeric and cursor
pads, positive Tactile feel\$129

Kensington Microware

New Turbo Mouse.....Call
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System Saver SE\$52
Tilt & Swivel\$22
Masterpiece Mac II\$105
System Stand Mac II\$19
Mouse Pad.....\$8

Mouse Systems

A+ Mouse.....\$65
ADB Mouse.....\$79

Aldus

Pagemaker\$395

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Perfect Secrets

Who knows what mysteries lurk in the heart of WordPerfect? We reveal a few of these buried treasures.



There are four kinds of features in any program: the ones you can figure out yourself, the ones they tell you about, the ones they don't tell you about, and the ones even they don't know are there. WordPerfect has gobs of features, but not all of them are obvious. There are little nooks and crannies you might not encounter unless you (gasp) read the documentation or (horrors) buy one of the books about the program. Pity. Those hidden features are exactly the ones that can move you into overdrive.

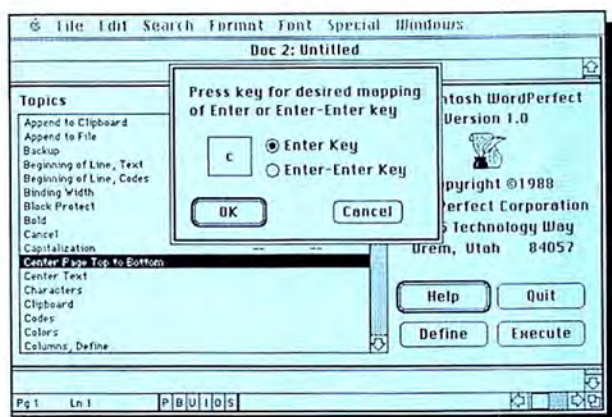
PAST PERFECT

WordPerfect is not a Mac original, but what you may not realize is that it's not an MS-DOS original, either. It was first designed for Data General minicomputers and has been ported to IBM 370 mainframes, UNIX-based minicomputers, the Apple II, Amigas, and of course the IBM PC.

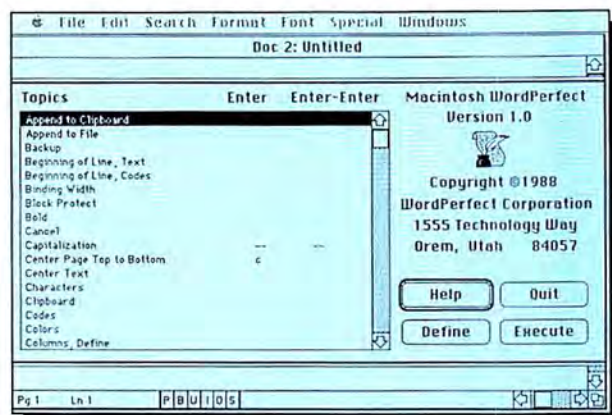
WordPerfect's migration to the Mac has not been without controversy. First, there was a lengthy delay between its announcement and shipment. Second, there was a highly publicized marketing ploy of selling admittedly buggy, but discounted, betaware with the promise of a free exchange for version 1.0, when it became available.

When the first release finally appeared in early April, it was followed within three weeks by no fewer than three other versions, all of them carry-

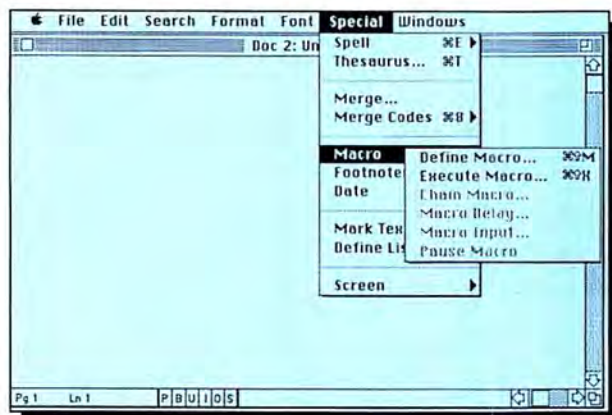
BY DANIEL J. ROSENBAUM



The Help screen does more than give help; it's where you start to redefine the keyboard. You can assign nearly any feature in WordPerfect to a short series of keystrokes, starting with the Enter key.



Once you map a function to an Enter-key combination, the Help screen shows which key combinations will do what.



To start defining macros, either type Command-Shift-M or pull down the Special menu, and then pull down the Macro submenu.

ing the version 1.0 label. Even though the file creation dates were updated, even though the company promised free updates, and even though an identical policy went completely unremarked upon in the IBM world, the uproar in the Mac community has caused WordPerfect to start incrementing the version number whenever a new master is shipped.

And once the users got it home, even

WordPerfect's design proved controversial. The program allows (but does not require) users to see the actual formatting codes that cause a document to appear the way it does. Despite the optional nature of the code display, some purists denounced it as evil and the work of IBM lovers — an opinion buttressed by WordPerfect's nearly endless capacity for keyboard customization.

Despite the brouhaha, WordPerfect has strolled to the top of the Mac best-seller lists. There's a lesson here somewhere.

PERFECT EQUIVALENTS

The program is a haven for keyboard mavins; some 50 different commands have Command-key and Command-Shift-key equivalents. You would think that would be enough for even the most hardened mouse-ophobes. Wrong. Early on, I found myself wishing for a keyboard equivalent for Retrieve, which loads a file into the current window, or Transfer, which quits WordPerfect and starts some other package.

WordPerfect provides a simple way to create keyboard equivalents without messing around with anything potentially nasty like ResEdit. Pull down the Apple menu and open WP Help (or press Command-?).

At the top of the Help screen, you'll see "Topics" on the left, then "Enter" and "Enter-Enter" on the right. You can assign Enter-key and Enter-Enter-key combinations to just about every function in WordPerfect — even functions that already have Command-key equivalents. Click once on the function for which you want to create a keystroke, then click on the Define button. That's it.

Let's say you want to create a two-keystroke equivalent for centering a page from top to bottom. Click once on that topic and click on Define. A dialog box will appear, asking how you want the key combo mapped. Click on the appropriate radio button, press the letter you want to use as the keyboard equivalent, and click on OK. The equivalent you just created is listed in the Help dialog box's scrolling list.

To center a page from top to bottom, all you need to do is press the Enter key followed by a c. (Don't press them at the same time; do it in sequence.) Previously, the fastest way to do this was to pull down the Format menu, pop up the Page submenu, click on Page Layout, and click the appropriate check box. (If you use keyboard equivalents, the fastest way to get to the Page submenu is to press Command-2.)

When should you use Enter-key-



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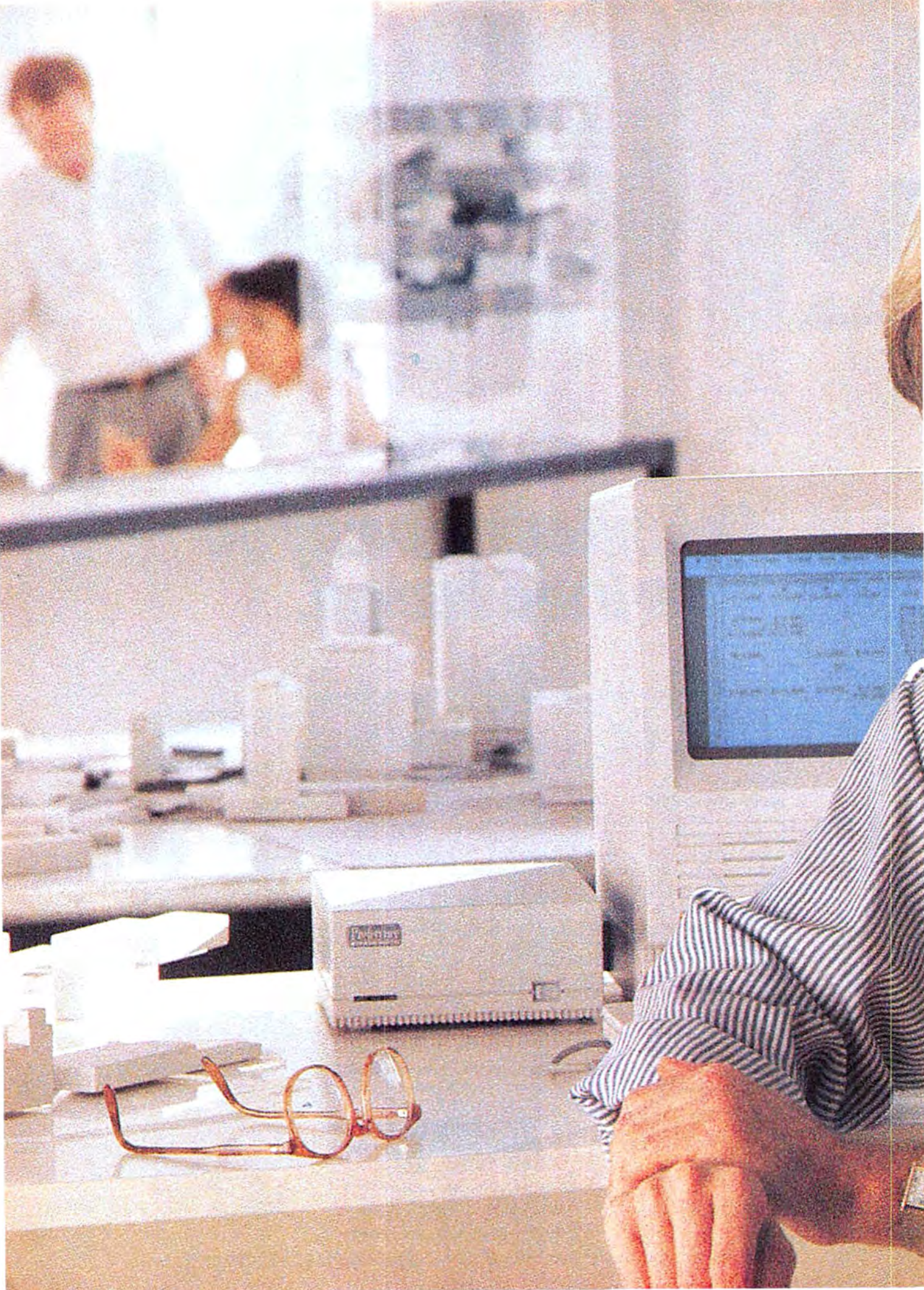
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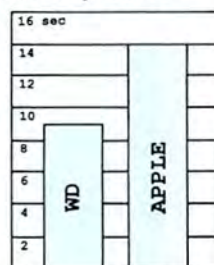
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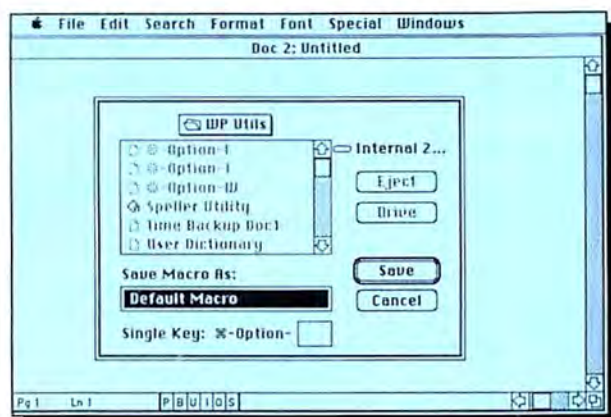
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Macros can have either full file names or Command-Shift-key names. The former are more informative, and the latter are quicker to use.



File Management lets you perform a range of functions ordinarily restricted to the Finder or add-ons like DiskTop or ResEdit.

stroke and when should you use Enter-Enter-keystroke? WordPerfect itself uses Command-key combinations for functions on primary menus and Command-Shift-key combinations for functions on secondary menus, so I suggest using Enter-key combinations for stuff on the initial menus and Enter-Enter to do things on the second menu level.

MACRO-ING MR. PERFECT

Defining new keystrokes for existing functions is fine, as far as it goes, but WordPerfect also lets you create new functions with its macro tools.

WordPerfect's macro facility, though powerful, is far from perfect. The chief problem is that if you make a mistake defining a macro, you have to start redefining from scratch; this can be a long, nerve-racking process. WordPerfect on the MS-DOS side has an integrated macro editor in version 5.0 and a stand alone editor for earlier versions. It seems likely that a similar

editor will eventually be made available for the Mac, but for now we'll have to wait.

If you get to be a real macro jock, you'll find that macros can actually work as an extremely rudimentary programming tool. (MS-DOS version 5.0 has a much more sophisticated macro language, and we can probably count on getting that eventually, too.) Such programming is way beyond the scope of this article, but here's an example of what you can do with WordPerfect's macros.

WordPerfect lets you change blocks of text to uppercase or lowercase, but it doesn't include a Proper-Case Convert (changing the first letter of the current word to capitals). With a macro, however, you can easily design such a function.

WordPerfect's macro icon is a WordPerfect document with a cassette tape superimposed on it. That's a terrific metaphor. When they're enabled, macros record keystrokes and

mouse movements and then play them back when called. And therein lies a problem.

WordPerfect stores mouse movements as relative movements. When you move the mouse while recording a macro, WordPerfect keeps track of the relative — not absolute — mouse position. Rather than remembering that you moved the mouse to "the middle of the screen," WordPerfect remembers that you moved it "4 inches to the left and up 1 1/2 inches." The odds that you're going to want to move the mouse precisely the same amount every time you run the macro are vanishingly small. (Using the mouse to get at menus and dialog boxes presents no problems.) To move around the screen, use the cursor keys instead — especially the "+" and "-" keys on the numeric keypad. You may be surprised at how effective they are.

Don't use the scroll bars while you're defining macros. The scroll bars only move the editing window — not the insertion point.

To start defining a macro, either type Command-Shift-M or pull down the Special menu, then drag down to Macro, and slide over to Define Macro on the submenu. You will now be asked to name the macro.

Macros can carry one of two names. If you give them a standard file name, you execute them by picking Execute Macro on the Macro submenu and selecting the macro from a standard Get File dialog. The faster way is to click in the Single Key box and enter a letter or number. The macro will then be invoked by pressing Command-Shift-whatever.

Command-Shift macros are handy because they're quick to invoke. Full-name macros are handy because you can use fully descriptive names. Think about it: Can you always be sure what Command-Shift-S does? Does it swap paragraphs? Switch letters? Put the whole document in shadow type? The only way to tell is to do it.

While you're recording a macro, the words Macro Def appear in the status area on the bottom of the screen. Press Command-left arrow to move the insertion point to the beginning of the current word. Then press Shift-right

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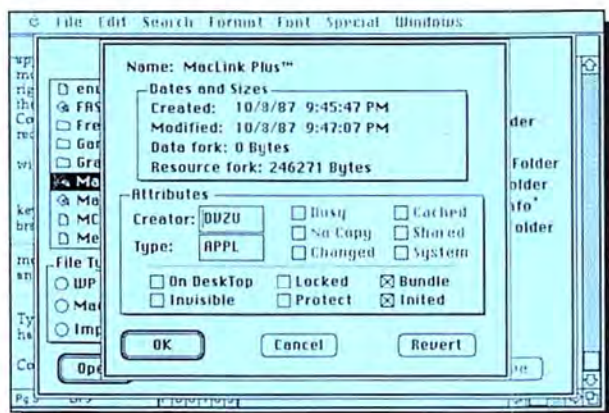
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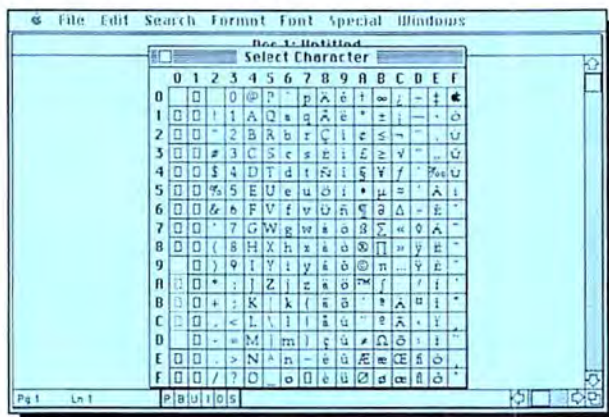




The File/Folder Info button in the File Management screen lets you change the Type, Creator, and other attributes of any file on any disk.

every instance of a single word, to eliminate bolding through an entire document, or to change bolding to italicizing. I strongly suggest you delve into macros more deeply.

If your Mac doesn't have a keypad or cursor keys, you can still use the keyboard to move the insertion point. Think of the equals, quote, left, and right bracket keys as pointing to the four major points of the compass. Command- \equiv will move the cursor up, Command- \downarrow will move it down, Command- $\left[$ will move it to the left, and Command- $\right]$ will move it to the right.



Insert Literal means never having to say, "I could have sworn the trademark symbol was Option-Shift-T!" This grid shows all the characters available in the current font (in this case, Palatino). To use a character, just click on it and it'll be pasted into your document at the insertion point.

PERFECTING A FILE'S PEDIGREE

In the course of using your Mac, you may have to change the Creator and Type of a file. That's why thousands of people have ResEdit or DiskTop on their hard disks. WordPerfect can do it for you.

Pull down the File menu and release on File Management (or enter Command-L). When the screen first comes up, it will list WordPerfect files. Click the All Files button.

Find the file you want to tinker with and click on it. Then either press Command-7 or click on the File/Folder Info button. You can now do several things, but the most immediately useful is to see and/or change the file's Type and Creator.

If you don't need to do that, you can use the File Management screen to delete documents, copy them, create folders, or rename files without returning to the Finder. Those of you with more than a megabyte of memory might want to use MultiFinder; we persons will like this method better.

arrow to select the first letter of the word. Now use the mouse to pull down the Edit menu to Case Convert, slide over to To Upper and release. Now press Command-period to cancel the selection and press Command-Shift-M to stop recording the macro. From now on, when you execute the macro you just created, WordPerfect will capitalize the first letter of the current word.

It'd be nice to be able to put some of these user-created functions up on the menu bar — much like Microsoft Word's Work menu, but currently, that's not an option. It may turn up in later versions, though.

Macros are a tremendously rich part of WordPerfect, and this simple one barely scratches the surface. You can design a macro to capitalize the first letter of every sentence, to index

Past Imperfect

WordPerfect has a somewhat unusual means of tracking minor updates. Most software companies will save up small bug fixes for months at a time and release a fairly major update with an incremented version number. WordPerfect doesn't work like that. The company is constantly making small fixes and improvements but uses incremented version numbers only for major updates, so each bug-fixed master carries its creation date but no new version number. To find out which version you've got, look at the About WordPerfect entry under the Apple menu. (The same date will appear in the program's opening window.)

If something doesn't work properly, call WordPerfect Support at 1-800-MAC-HELP. If it's a known bug that's been fixed in a later master, the company will send you the most recent version for free. If it's a new bug, they'll send you a new, fixed version as soon as it's available — also free of charge.

PERFECT DIALOG

One of the things that always made me nuts about Mac word processors was the absolute necessity of using the mouse to work through dialog boxes. Don't get me wrong — I like the mouse fine, but it sometimes kills the rhythm of keyboarding. Even Apple has keyboard equivalents that work with Get File dialogs.

WordPerfect goes a step further. When you see a dialog in WordPerfect, the odds are excellent that pressing Command with the first letter in a

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button will activate that button. In the spelling checker, for instance, Command-R will trigger Replace; Command-L will trigger Look Up; Command-I will Ignore, and so on.

This trick won't work with dialog buttons generated by the Mac operating system itself — particularly the dialog that confirms the replacement of an existing file. Check boxes don't respond to keyboard input, but some radio buttons do.

LETTER-PERFECT

Making full use of a font requires an excellent memory and all sorts of Option-key calisthenics. I can never remember which combination results in which special character in which font. I normally work in Palatino, and I'm totally lost in special characters when I need something in Zapf Dingbats.

Rather than forcing writers to fumble around with printed lists or to rely on the old hit-and-miss method, WordPerfect has a function it calls Insert Literal. It's on the Edit menu, and you can get it directly by pressing Command-I.

Insert Literal brings up a screen showing all possible characters in the current font — in this case, Palatino. To use one of them, just click on it once and it's placed in your document at the insertion point.

PRACTICE MAKES PERFECT

As you can see, WordPerfect has all sorts of nooks and crannies; the longer you work with the program, the more you're going to find. With Enter-key mapping and macros, you can essentially redesign the entire program, and the other features I've talked about can help get you off and running with this monster of a program.

[No, faithful readers, you haven't missed our review of WordPerfect, and we didn't run the articles out of order, either. Like you, we're waiting for WordPerfect version 1.0.1. When we get it, we'll review it, and you'll read it. — Ed.]

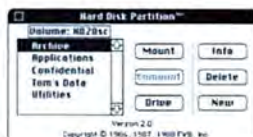
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Tip for Type

The latest trends in typing tutors for the Mac include arcade-style games, progress charts, snappy comments of feedback, and off-the-wall practice material. But will they teach you how to type?

Taking typing lessons used to mean sitting in a small, windowless room, fixed on such sentences as "Sue fed a sad lad a salad" as if they really meant something. Don't get me wrong, people learned to type well enough, but the process was certainly less than inspiring. Enter the Mac, with its animation and word-processing features. Gosh, typing lessons could be . . . fun! Imagine that. They also had the potential to be good.

Four contenders for the post of "The Program That's Finally Gonna Teach You How To Type" are Type!, which promises that "you can learn to type

quickly, accurately, and for keeps"; Typing Tutor IV, billed as the "newest edition of the #1 best-selling tutorial"; Mavis Beacon Teaches Typing!, which the manufacturer says is "the finest typing program in the world"; and Typing Instructor Encore, which refrains from self-indulgence.

GREAT EXPECTATIONS

Believe it or not, the first goal of a typing program should be to help you learn how to type with more skill than is needed in the two-finger system you may have been using. The standard system has always been to start

BY JANE BERLISS



Type! allows speed and accuracy goals to be set and changed either automatically or manually.

training with the "home row" (A, S, D, F, J, K, L, and ; — the keys the fingers rest on), continue through the other letters, and then cover punctuation and numbers. All the typing tutors covered in this article are based on this system. However, the order in which these lessons are covered can, on most programs, be changed at will. After you learn these letters, drills optimally based on results of previous lessons help you gain speed and accuracy. At least you'd hope so.

Unless there is some irresistible motivation, like a large sum of money or a Zen master with a wooden stick standing behind you, the temptation may be to play with a typing tutor briefly and then walk away, without really putting in the effort to learn how to type. Video game-type exercises are standard on all the typing tutors being reviewed here, but the need to keep the student coming back for more goes beyond just flash. It encompasses having material to type that strikes a balance between being interesting and emulating real-life typing situations. After the most preliminary stages, it helps to use sentences instead of mere repetitive groups of letters whenever possible. Appropriate feedback, such as letting the user know what progress he's making and how to keep improving, can also help keep interest alive.

Besides just teaching computer users the most efficient way to move their fingers over the keyboard, typing tutors can make excellent "first programs" for people who have never touched a computer before and are apprehensive about the experience. A typing tutor could also be used as a first step in giving the power of words

to people who, for a variety of reasons (such as motor impairment or dyslexia), have difficulties with handwriting or using a typewriter. Any program constructed with these types of users in mind needs to be easy to run, interrupt, and stop. Additionally, it should be well documented, both on- and off-line, and flexible enough to allow users to choose their own lessons if the program's agenda is inappropriate.

Finally, although a typing tutor should be complete in itself, it should also be usable as a supplementary tool in a typing class. Therefore, the program should be able to record and keep separate the progress of a reasonable number of users at one time.

THE STRONG, SILENT TYPE!

You may not be a big fan of reading user manuals, but sometimes they can be a great indicator of how easy the program is to use and learn. For example, on the first page of the first chapter of the Type! manual is a review list of ways in which the mouse can be used. To me, this means that the program will make life as easy as possible for the user. Although the manual is printed in a rather small typeface, it is organized logically and clearly. Illustrations are used judiciously and frequently, and — unique among typing-tutor manuals reviewed here — there is an index, which doubles as a glossary.

There are three modes to Type!. In the Lesson menu, users have three options: the Introducing the Keyboard tutorial, an elementary guide to finger placement; the Keyboard Basics feature, a set of twelve drills focusing on specific keys, fingers, or common er-

rors; and the Build Speed and Accuracy option, a set of drills on sentences that require all the skills enforced by Keyboard Basics. The options on the Test menu can be used to measure performance during a sustained drill (drills can be as short as one minute and as long as five minutes). Finally, Type!-Athlon, similar to Keyboard Basics, uses an animated simulation of a track and field competition instead of the same old screens you find in the rest of the program.

The program assumes the user has had some typing experience. For example, the typing goal is preset to 20 words per minute with 90-percent accuracy, though these goals can be changed at any time. Goals can also be updated automatically after each lesson. (A lesson consists of ten screens, usually of one line each, of material to

If
an incorrect letter is typed,
the typist's runner
stumbles and produces a
rather severe grunt of pain.

practice.) Depending on the results, the speed and accuracy goals will independently move up or down in increments of ten. The Settings selection from the File menu allows the settings to be readjusted, the automatic goal update feature to be disabled, and the sound to be turned on or off.

After each lesson, a screen showing the name of the lesson that has just been completed and a recommendation for the next lesson to practice appears. The recommended lesson can also be accessed by choosing Recommended from the Special menu. In fact, at any point in Type!, it is remarkably easy to change lessons, exit from a lesson, or move from one feature to another at any point simply by pulling



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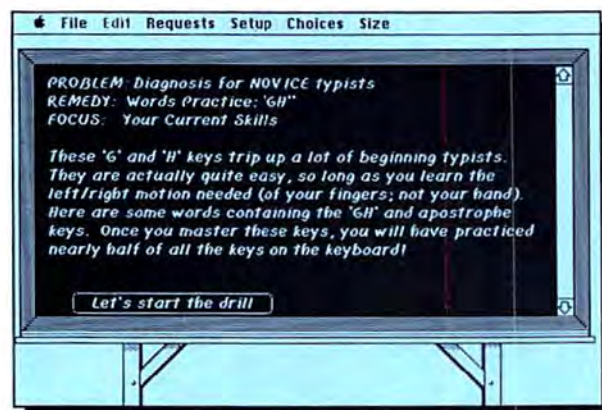
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SoftPC even runs on your accelerated Mac SE.



Type!'s arcade-style game, *Type!-Athlon*, makes it a contender for the official typing software of the 1988 Olympics.



Mavis Beacon's "Blackboards" preview lessons and give tips on learning or improving specific skills.



Further specifications can be set, temporarily, with the Build Your Own Lesson screen.

it's just different from the error-handling routines in the other programs, which either pause for correction or proceed to the next letter. And it is certainly not how things happen in the real world of typing.

The only feature that may be a bit discouraging to the new user is in the *Type!-Athlon*, which pits a runner representing the goal against a runner representing the typist's progress. If an incorrect letter is typed, the typist's runner stumbles and produces a rather severe grunt of pain. Even turning the sound off in both the Control Panel and the File menu Settings option won't entirely eliminate this sound. In addition, it is never made clear that you must hit the Return key or the space bar after each line is typed. This could allow the goal runner to progress significantly before the typist's runner is much beyond the starting point.

As you exit *Type!*, you are asked whether you wish to save the results of the session. If the answer is yes, the results are saved in a separate file that can be called up at the beginning of the next session to continue recording typing scores. This gives *Type!* the potential to accommodate as many different users as disk space allows.

WHO IS MAVIS BEACON?

Mavis Beacon Teaches Typing! no doubt failed in negotiating for Vanna White to turn the letters being typed onto the screen. While word entry is slow, this program does contain some interesting features: a scolding dialog box, telling you "You'll never learn that way!" if you try exiting from the initial Tour routine; metronomes that can be set up to play "The Entertainer"; a manual that devotes 15 rather sexist pages to the history of the typewriter (glossing over the history of the word processor); "blackboards" giving analyses of the results of the previous lesson and suggestions for the next lesson; and some very bizarre practice material, such as, "Could a zippy clam fail an exam?"

In theory, and frequently in practice, Mavis Beacon is a well-setup tutor. If you "enroll" as a beginner, you are given a tour of the keys. If you indicate that you are at a more ad-

down a menu and clicking on the new choice.

There are two types of practice material: elementary school text (for fourth- and fifth-graders) and standard text (for junior-high to adult users). The difference between the two is minimal. In one test, you'll find the story of Larry the Lion, while another will discuss the Seven Wonders of the Ancient World (we'll leave you guessing as to which appears at which level). You can also create a test, either by

using the Edit Custom Tests option on the Tests menu or by reading in a file created in any version of MacWrite.

The typed material is not "echoed"; that is, what the user actually types is not displayed on-screen. If a letter is mistyped, an arrow appears beneath it. If the mistyped letter is the next letter in sequence, e.g., if, when typing *cats*, you typed *ct*, *Type!* would mark the *c* as being incorrect, skip past the *t*, and anticipate that *s* would be the next letter typed. This isn't necessarily bad;



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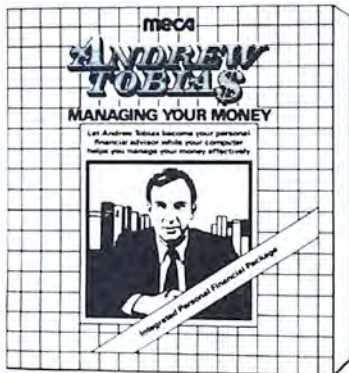
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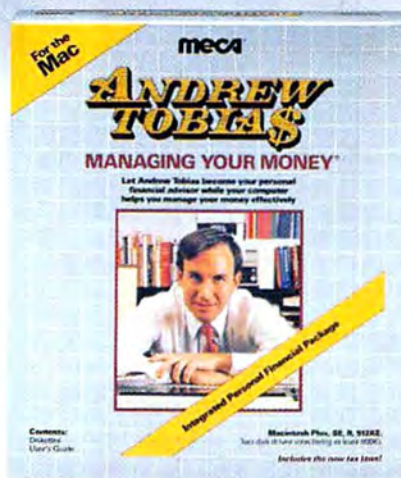
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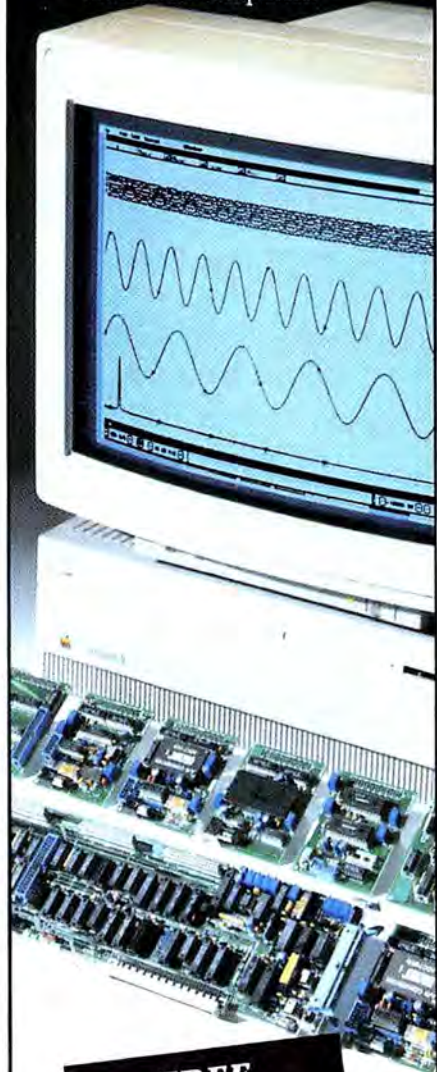
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Tip for Type

WORD PROCESSING

Type the A-Frame

Stretch your arms out in front of you. Lower your hands so they rest just above your desk. Got that? Now hold it right there, for about eight hours.

Think your hands might get a little tired, do you? Not to mention your arms, back, and all those other muscles that you don't even know are there until you do something you wish you hadn't. This is one part of typing they try to skip over in class: It hurts.

And the reason it hurts is that typewriters were designed to be inefficient. They were designed to slow down typists, so they couldn't jam the mechanisms by typing too fast. They were designed to be easy to mass-produce, forcing typists to adapt to the rectilinear motion of the machine. In short, instead of designing typewriters around the hand, typewriter manufacturers have insisted that typists redesign their hands around the typewriter, a painful process indeed.

So how do you spell relief? How about "T-O-N-Y-I!", but only if you can put up with an endless stream of wisecracks and gawking from your less visionary colleagues. The Tony! keyboard, which now exists only in prototype form, adjusts to the contours of your hands and fingers. For starters, you can arc the keyboard into kind of an A-frame shape, to whatever angle feels best to you. You'll be typing on an incline, but — with your palms facing more towards each other — it's a more natural, relaxed position. Those old enough to remember could think of it as Earth Shoes for your hands. Organists who've played on one of those old Wurlitzer theater organs that curved the keyboard and the stops around the player, rather than forcing the player into unnatural back-and-forth motions, should also be able to appreciate this effect.

Everyone in our office who tried it felt the difference immediately. It might take a little getting used to the split-keyboard arrangement (my thumb kept lunging for a space bar that wasn't there), but you can make the transition a few degrees a day, to ease yourself into it. The final design calls for each individual key to move independently, on a 360-degree ball joint and up and down on an adjustable stalk (although the prototype we tried didn't have these features). You can get more information from the inventor, Tony Hodges, at Tony Corporation, 54 Belleau Drive, Atherton, CA 94025; (415) 323-4801. OK, it looks funny, but to paraphrase another well-known Tony, it feels grrrrrrreat!

— Jon Zilber

vanced level, Mavis runs diagnostic tests using the same Classroom setup as in the tour. After learning the keys or running the diagnostics, you graduate to a Workshop, which is similar to the Classroom except for the addition of a number of bells and whistles including a metronome, a clock, and meters that show accuracy, speed, and time left on the lesson. After each lesson, the speed, accuracy, and speed adjusted for errors are displayed. It is also possible to view any one of 19 graphs, of varying degrees of usefulness, that show the results of the most recent lesson and an average for all lessons. There is also a Build Your Own Lesson feature on the Choices menu; however, this feature doesn't allow access to specific parts of the tour, and it's available only once before Mavis goes back to her own agenda. Thus, this program is useful for someone who needs continual guidance but may be

unsatisfactory for those who like to call their own shots.

Mavis Beacon is the only tutor reviewed here that lets you change the size of the letters used in the lessons to any of the standard MacWrite font sizes (from 9 to 24 points). This can make material easier to see and type.

I found the programming of Mavis Beacon somewhat sloppy. For example, I was asked to type, "Why did the pig dress up like a clown?" while running the Tour. Since the program consistently locked up after I typed this, I continue to spend sleepless nights searching for the answer. During a drill, I was interrupted and told I had made "too many errors," though my accuracy was 96 percent and I had not made many errors in a row. Also, the documentation claims that "Update Student Info" on the Requests menu "saves the current program settings with your student records," when it ac-

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Tip for Type

WORD PROCESSING

Dueling Keyboards

From the "Fascinating Facts About Keyboards" file (right next to the tidbit about the longest word you can type using only the top row isn't "typewriter"—it's "rupturewort"): the familiar QWERTY keyboard is not the only kid on the block. Most common of the so-called "alternative" keyboards is the Dvorak, which has nothing to do with either Czech composers or certain anti-editors of certain computer journals. Instead, it is a more efficient arrangement of keys wherein the "home row" keys (A, O, E, U, I, D, H, T, N, S, and -) account for 70 percent of all letters typed, as opposed to 32 percent for the home row on a QWERTY keyboard.

On the Mavis Beacon Enroll screen, it is possible to choose to learn on a Dvorak keyboard. Although a list of Dvorak keyboard dealers is thoughtfully included in the manual, all that is really needed is the standard keyboard and a bunch of tags to label what key is what. There's also the Electric Dvorak Keyboard Layout, a DA that allows you to toggle between the QWERTY board and the Dvorak. This is public-domain software available for five dollars or an initialized disk and SASE from Tom Phoenix, Box 265-ed, Portland, OR; 97207-0265. (The author encourages you to get copies from your friends or user groups, but watch for viruses.) Mavis Beacon then uses the same lessons — starting with the home row, providing diagnostics, and so on — to teach this alternative typing method.

Some users may have no interest in the letter portion of the keyboard at all; they may merely wish to become efficient in use of the keypad. Typing Tutor IV and Typing Instructor Encore both boast keypad-training programs that work on the same principles as their keyboard exercises. However, Typing Instructor Encore stubbornly insisted that the Macintosh SE I was using had no keypad, so I was unable to test this feature.

Finally, some people may not be physically able to type using ten fingers. For example, the angelically patient woman who let me test the software for this article on her Macintosh has tendonitis, which prohibits her from using her left hand to type. Each of the technical support teams for these products was queried as to the compatibility of their typing tutor with Easy Access, the now-standard Macintosh feature that makes typing easier for some people with disabilities by, for example, allowing the Shift key to be hit independently of the key it affects. All these teams were extremely friendly; The Software Toolworks confidently asserted that Mavis was EA compatible, Individual Software was somewhat less sure about Typing Instructor Encore, and the other two claimed to be incompatible. In actual tests, EA worked beautifully with all these programs, which suggests that publishing companies may need to become aware of the transparent nature of this utility.

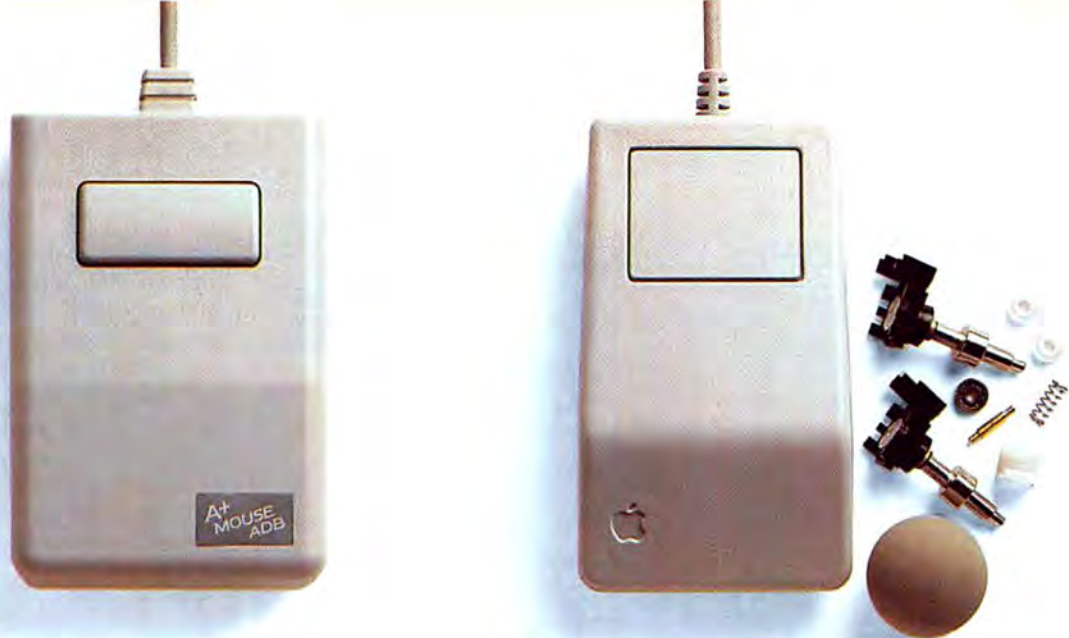
tually just lets you change the options set with the Enroll screen.

The arcade game, Road Racer, can be substituted for the Workshop at almost any point, because they use the same material. However, the practice material and the echo of what is being typed are hard to see simultaneously, so speed may be unnecessarily sacrificed while the user looks down to check on the problem.

As an added feature, Mavis Beacon also throws in a Resume Writer, which is supposed to take facts about your educational, military service, and employment history and arrange them into a standard résumé. But don't get too excited. There is no step-by-step documentation as to how to run this, and it's not easy to use.

FOUR THE RECORD

Typing Tutor IV is a bit like a no-frills airplane ride. It should get you where you want to go, but after awhile you start missing the food and the motion picture. This program must have been designed mostly with a clientele of typing teachers in mind. There is almost as much space in the manual dedicated to an "Instructor's Guide" (explanation of the Instructor mode, which allows configuration of student records) as to the instructions for running the program. TT IV even requires that you set a weekly goal for time spent practicing, and it keeps track of your progress; so even if there's not a human teacher standing over you, there's a mild guilt factor to keep you coming back.



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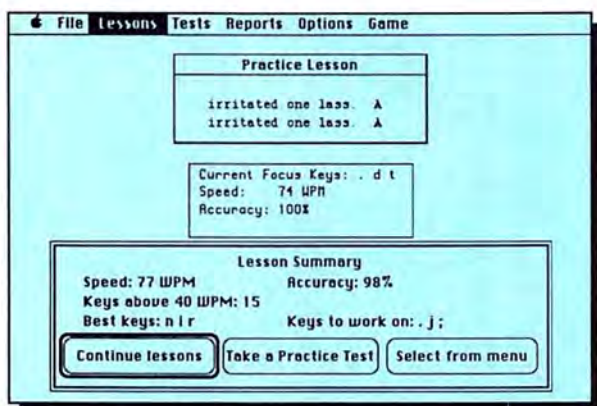
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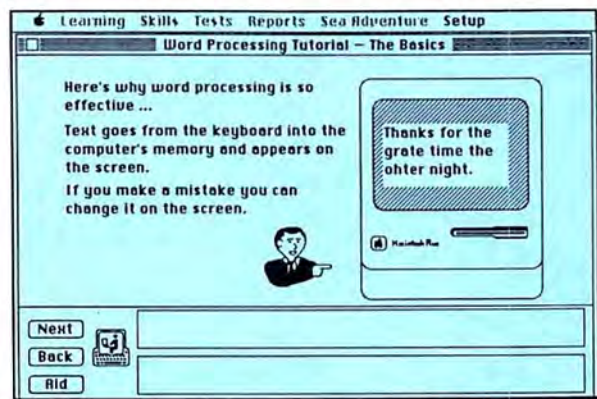
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The program stops frequently, albeit not always predictably, to give a Lesson Summary.



Words fall from the sky in Letter Invaders, and must be typed to prevent the destruction of the landscape.



Among other animated tutorials, Typing Instructor Encore has a presentation that defines word processors.

There are fewer menu options on this program than on the other three tested. The user has almost no control over the order of material covered. Instead, TT IV merely chugs along, methodically covering letters as it sees fit. There is no provision for specifying user level; thus, anyone from beginner to expert typist must go through the same lessons. The most that can be done is to change the number of drills per lesson, using the Drills option. For the most part, these drills are a single

line that consists of either groups of letters or "sentences" that use the same words over and over and show up half on one line and half on the next. Boring.

If nothing else, TT IV is thorough. Admirably, All-Key tests include *every* character, not just common ones, so you're as likely to be asked to type a { or a ^ as a letter or number. Less admirably, each menu has an on-screen Help option that tends to go on for two or more pages. Certainly not a *Read-*

er's Digest condensed version of the manual! The seven-page introduction that appears the first time a new user signs on is similarly clumsy.

Unlike the other tutors, TT IV saves user records not only to disk but also to in-program Student Records. While this limits the number of users to eight at any given time, it does allow an instructor to see progress reports for all users. Individual reports only cover results of tests.

The one bright spot in this program is Letter Invaders. You are challenged to type fast to catch falling words in the regular typeface, *Boomlets* that are in boldface and fall extra fast, and *Word Ships* that cheerily jog across the screen. Although these latter two come with auditory cues, it's still easy to recognize and catch them with the sound turned off. As you are typing a word, you must get every letter correct or start again. Since the next-to-last letter tends to disappear from view while the word is being typed, your ability to remember blocks of text while typing is inadvertently tested.

THE ENCORE OF THE MATTER

It would seem an obvious feature, but only Typing Instructor Encore includes it: an on-line mini-lecture on how a word processor, as opposed to a typewriter, functions. And considering that word processors have replaced the typewriter in most offices, this feature needs more emphasis in this genre of programs. This, plus the fact that Encore will deliver a hint on how to proceed if you pause more than about ten seconds between activities, makes it a contender for consideration by computer neophytes.

A great deal of control is possible with Encore. You can set the speed of the program, quit at any time by clicking the Go Away box (the standard Close box underneath the Apple menu), and, with the Skills menu, drill on any one of 19 lessons, covering groups of up to four keys. (However, each lesson builds on the previous lesson, so if you jump into lesson 3, you will be expected to use keys from lessons 1 and 2.) There are also on-line lectures on topics such as posture. Tests are the only material that ap-

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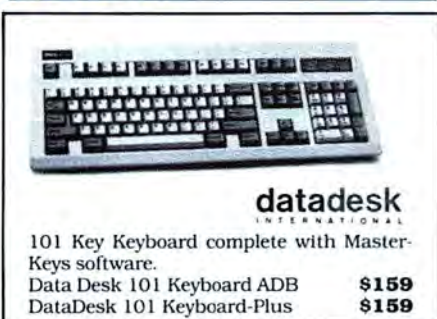


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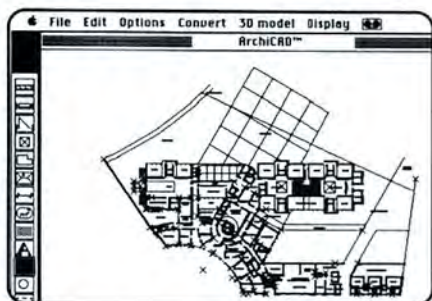
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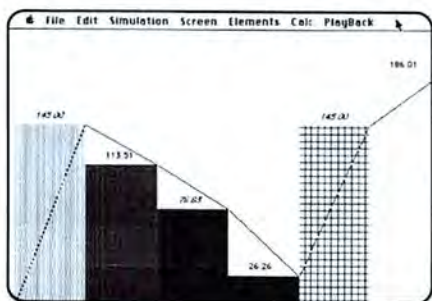
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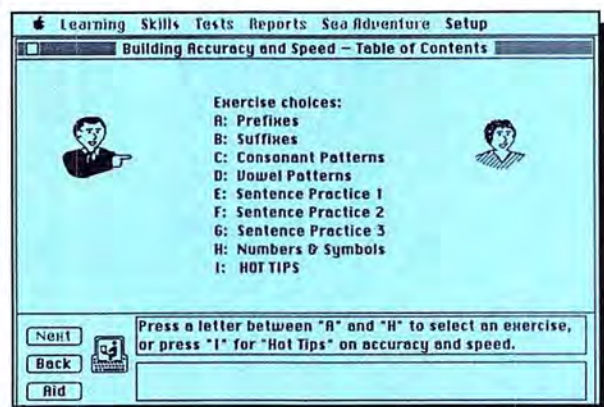
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Tip for Type



Typing Instructor Encore's menus let you choose any lesson at any time.

pears in the reports, which show both a general analysis and a key-by-key analysis of speed. The key-by-key analysis clearly shows, using white and shaded bars, which keys need work — perhaps the most useful graph in any of these programs.

The game feature is simple and silly enough to be attractive. You type fast enough to keep ahead of a lobster, who "eats" through the typing material if you are too slow.

Any mistyping at this point will erase the word in question and force you to start the word over. The small fish swimming back and forth across the bottom of the screen, though, may be distracting.

Encore has a few peculiar bugs. The nastiest one prevents the program from recognizing the keypad on an SE. This made it impossible to test this training feature.

WHAT'S YOUR TYPE?

Most of these typing tutorials are likely to find a specific audience. Mavis Beacon, due to its flash and its assumption of Macintosh proficiency, will be most attractive to computer whizzes who want to improve their typing skills. Its usefulness as a Dvorak-keyboard trainer will also bring in an audience. Typing Instructor Encore could be most helpful to those who have some proficiency on typewriters but need practice to make the transition to a word processor. Typing Tutor IV is packaged to appeal to those who teach typing. Together with Typing Instructor Encore, TT IV may also be used by those who just need to learn to use the keypad.

If you don't fit into any of these categories, consider your computer proficiency and your threshold of boredom before making a choice. Although all of these programs will probably teach you how to type sooner or later, if I had to choose the best from this group it would probably be Type!, which is straightforward enough to be friendly and interesting enough to be motivating.

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Mavis Beacon Teaches Typing! ★★★★★

Follows Mac Interface ☒
Printed Documentation ☐
On-Screen Help ☐
Performance ☐
Support ☐
Consumer Value ☐

Comments: A typing tutor almost too gadgety for its own good. **Best Features:** Expert system-type diagnosis distinguishes between chronic problems and problems likely to have been caused by user fatigue. **Worst Features:** Incomplete, inaccurate documentation. **List Price:** \$49.95. Requires Mac Plus or higher. Version 1.1 reviewed. Published by The Software Toolworks, One Toolworks Plaza, 13557 Ventura Blvd., Sherman Oaks, CA 91423; (818) 907-6789. Copy-protected; possible to purchase non-copy-protected disk from publisher for \$10 (version 1.2 will let you put files on your own disk).

WORD PROCESSING

MAC USER RATING

Type! **★★★★½**

Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	□
On-Screen Help	■	■	■	□	□
Performance	■	■	■	■	□
Support	■	■	■	■	□
Consumer Value	■	■	■	■	■

Comments: A typing tutor that strikes a balance between flash and practicality. **Best Feature:** Easy to interrupt and move between functions. **Worst Feature:** Uses of Return key or space bar assumed but never explained. **List Price:** \$49.95. Available on one 800K or two 400K disks. Version 1.0 reviewed. Published by Brotherbund, 17 Paul Drive, San Rafael, CA 94903-2101; (415) 499-8661. Not copy-protected.

MAC USER RATING

Typing Instructor
Encore **★★★★**

Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	□
On-Screen Help	■	■	■	□	□
Performance	■	■	■	■	□
Support	■	■	■	■	□
Consumer Value	■	■	■	■	□

Comments: A tutor that actually acknowledges it's being used on a word processor. **Best Feature:** Easy program to control. **Worst Feature:** Strange bugs in program. **List Price:** \$49.95. Requires 512K or more of memory. Published by Individual Software, Inc., 125 Shoreway Road, Suite 3000, San Carlos, CA 94070-2704; (415) 595-8855. Not copy-protected.

MAC USER RATING

Typing Tutor IV **★★★**

Follows Mac Interface	■	■	■	■	■
Printed Documentation	■	■	■	■	□
On-Screen Help	■	■	■	□	□
Performance	■	■	■	■	□
Support	■	■	■	■	□
Consumer Value	■	■	■	■	□

Comments: A staid, but effective enough, typing tutor. **Best Features:** Consistently tests use of all keys, not just letters and numbers. **Worst Features:** Practice and test material is unimaginative and unmotivating. **List Price:** \$49.95. Requires 512K or more of memory. Published by Simon and Schuster, Inc., One Gulf+Western Plaza, New York, NY 10023; (201) 592-2900. Not copy-protected.

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THE HELP FOLDER BY CHRIS ESPINOSA

Got a Mac problem? Something you'd like explained? Something you can't find the answer for anywhere else? Apple's Chris Espinosa will answer your questions every month in this space. When the questions are too tough or too esoteric for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Chris, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. Chris will read all your questions, but, unfortunately, he may not be able to answer individual queries.

LOOKING FOR A SPOOLER

Q. As an Apple developer, I am usually fairly well plugged into the software and hardware available for the Mac. I've been on-line with the Mac since 1985. Yet I hear nothing of a software print spooler for the ImageWriter.

There is a hardware/buffer print spooler I've seen for several hundred dollars that works nicely, but it costs several hundred dollars. It is beyond my imagination that with hard disks (for spool files), MultiFinder (for background processing), and wonderful desk accessories that can do everything including help E.T. phone

home, there seems to be no viable way to spool a file and print it while working on another task.

Please tell me the why of "Why can't I have one?" or the where of "Where can I get one?". I would be interested in the history of various attempts to meet this need and what the barriers were or are.

STEPHEN MANDELL
CEDARHURST, NY

A. If you've been around since 1985, then perhaps you remember that Multiplan offered background printing. And with 128K of RAM and a single-sided 400K floppy disk drive, you noticed that you couldn't get too much done while background printing, and printing took a long time and stopped each time you held down the mouse button.

Why was this? It was because of the Mac's bit-mapped fonts and graphics. In high-quality mode on an ImageWriter, an 8-x-10-inch page uses over 200K of information, while an Apple II or IBM PC text page contains only 4 or 5K. Formatting and sending that 200K of data takes up most of a Macintosh's processor, leaving little for other tasks.

But with faster hard disks and slightly smarter programming, some background processing is possible. Three commercially

available packages can spool to an ImageWriter that is directly connected: MaxPrint from MacMemory (suggested retail price \$49.95; doesn't work on the Mac SE), MacSpool 2.0 from Mainstay (\$79.95; requires 1 megabyte), and SuperLaserSpool 2.0 from SuperMac Software (\$149.95; works with directly connected and networked ImageWriters and LaserWriters). All of these work independently of MultiFinder and include desk accessories to manage the queue of spooled print jobs.

MacMemory can be reached at 2480 North First Street, Suite 160, San Jose, CA 95131; (800) 862-2636, or in California at (408) 922-0140. SuperMac Technology, a division of Scientific Micro Systems, is at 295 North Bernardo Avenue, Mountain View, CA 94043; (415) 964-8884. Mainstay can be reached at 5311-B Derry Avenue, Agoura Hills, CA 91301; (818) 991-6540, or (800) 628-2828 for orders only.

If you have an AppleTalk network, you might check the AppleShare Print Server from Apple, which runs either on a dedicated Macintosh or in the background of an AppleShare File Server. The AppleShare Print Server can act as a print server to up to five LaserWriters, ImageWriter IIs, and ImageWriter LQs simultaneously (\$299).

YOU GET WHAT YOU PAY FOR

Q. I work on the graphics/production end of the newspaper business, and quality of print as well as solidness of reverses (white on black) is a constant problem. We've experimented with recharged cartridges in our Macintosh LaserWriter Plus and found that, although the quality of copy is satisfactory, the quality of the blacks is very inconsistent. And these reverses are used a good deal in advertisements. This, in turn, creates unnecessary work for the camera people, who then have to scrape out these areas on the negatives in order for them to reproduce as solid black.

It's a shame that this is the case, because buying recharges cuts the cost of cartridges practically in half, and quite a bit of money can be saved. Why does this happen with the recharges, and can it be avoided?

STACEY FOLSOM
HAMPTON FALLS, NH

A. As I mentioned in this column a couple of months ago, the reason LaserWriter cartridges are costly is that they contain not only toner but also all of the mechanics that suffer the most wear in a copier. So when you replace a cartridge, you're also replacing worn-out

THE HELP FOLDER

rollers; when you recharge a cartridge, you're putting those worn-out parts right back into the machine. Though they pose no danger to your printer, the image quality will suffer.

Some cartridge-recharging companies use better toner than others, which can compensate for the wear and actually produce blacker blacks. And the new design of the LaserWriter II cartridges also makes black areas more solid. But the best way to get good quality on a LaserWriter Plus is to use a new cartridge that has been broken in for a dozen copies or so.

If you use the LaserWriter for both office and

production tasks, use only new cartridges for camera-ready copy, then change to a recycled one for office memoranda. Keep the "production" cartridge in the foil bag between uses. And use 16- to 20-pound paper stock with a smooth finish (standard photocopy paper is fine). The paper should be white and not glossy.

WINDOW-SIZING SHORTCUT

Q. Since Microsoft builds so many keyboard shortcuts into its programs, I would like to know if you can change the size of a window from Excel from the keyboard (rather than by clicking the resize box or double-

clicking the title bar). I would also like to know how to change the size of a window in Excel and save that change.

DAN EGGLESTON
AUSTIN, TX

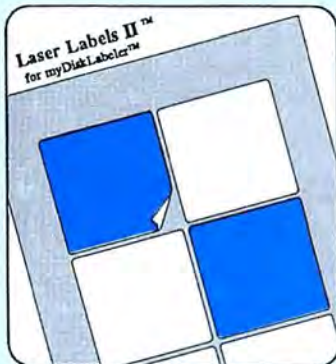
A. I couldn't find a way to save the size of a window, but by using the Excel macro facility you can set the size of the frontmost window with one keystroke. Choose New, click Macro Sheet, then select the first cell on the new macro sheet. Choose Set Recorder from the Macro menu, then choose Start Recording. Now just change the size of the frontmost window, then choose Stop

Recording. There'll be two lines in the macro sheet. Select them and choose Name; you can then name the macro and assign it a Command key.

Save that macro sheet. Whenever you use Excel, open that macro sheet first, then you can use the Command key you assigned to resize the frontmost window.

IMAGewriter LQ COMPLAINT OF THE MONTH

Q. I have been using an ImageWriter LQ with my Macintosh Plus since January. Generally, the LQ produces excellent output in text and drawings, with the flexibility to



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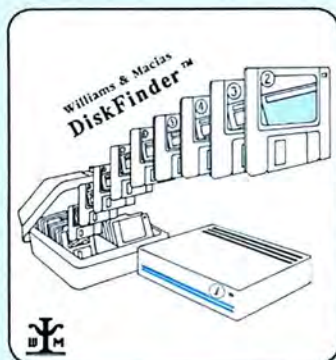
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I recently upgraded to System 6.0/Finder 6.1, but I am still using the ImageWriter LQ driver version 1.0. My nearest Apple dealer has yet to receive the version 2.0 driver.

My problem seems to be a common one, but it really detracts from what would otherwise be high-quality professional documents that I have written. The LQ in letter-quality mode arbitrarily steals the spaces from between words and occasionally wraps the first line of a paragraph so that its last word protrudes past the paragraph's right margin.

Does the LQ version 2.0

driver remedy this problem, or is Apple working on some other fix? The printer's output is an extremely irritating (and professionally embarrassing) violation of the good old "What you see is what you get" philosophy.

L. STEPHEN YOUNG
LAKE ALMANOR, CA

A. The line-layout problem on the ImageWriter LQ has been a source of much consternation for a lot of people, including Apple's Research and Development department. The same problems cropped up in the early versions of the recently released FAXModem; shipment of that product

was held up until the problem was fixed. In August, Apple released the version 2.0 driver for the ImageWriter LQ, rolling it into production and making it available through Apple dealers and through user groups over AppleLink. This version fixes the line-layout problems of too-long first lines and missing spaces between characters.

LASERWRITER BIT-MAP QUALITY

Q. Enclosed are three versions of an image from the Fish, Fur, and Fowl disk of the MacMemories series.

With Canvas and SuperPaint I reduced the image to

48 percent, since I've read that this reduction matches the bit-mapped image to the LaserWriter best. With PageMaker I reduced the image to a third automatic resizing click, which is also 48 percent.

I was surprised at the difference in the images. How are these three programs dealing with the reductions to cause such significant differences in the printout?

BILL STEVENS
WINSTON-SALEM, NC

A. The three images you enclosed were quite different: one was very dark black, with big white dots in it; the second was lighter, but kind of

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THE HELP FOLDER



Canvas at 48 percent



SuperPaint at 48 percent



PageMaker at third
resizing click

Three peas in a pod? Not necessarily so — your software does make a difference. The same image, when reduced 48 percent, is startlingly different when printed via Canvas, SuperPaint (Smoothing off), and PageMaker (Smoothing on).

fuzzy; and the third was very fine and clear. Two things are happening to produce these three variants of the same original image.

Canvas is taking the original image of 72 dots per inch (dpi) and reducing it 48 percent, but it's just making a smaller image with 72-dpi resolution, losing much of the information in the original. When printed on a LaserWriter it looks dark and chunky, because the 300-dpi LaserWriter has to use a square of nine black dots to represent each of the 72-dpi pixels in the image. SuperPaint is doing better; it's taking the 72-dpi image and reducing it 48 percent to make a smaller image, but at 150 dpi, which is exactly half the LaserWriter resolution. Thus, the LaserWriter needs to use only four dots to represent each pixel in the image, and it's finer.

PageMaker is doing the same thing. But the big difference in the PageMaker picture is that Bitmap Smoothing has been turned off in the Print dialog box. This feature is good for smoothing angles and

curves in "line art" bit-mapped images, but it's very bad for scanned and halftone images like the ones you're printing. It looks like the difference between the SuperPaint and PageMaker image is simply the Bitmap Smoothing setting.

So to get the highest quality images out of scanned images, print at 48-percent reduction with Bitmap Smoothing turned off — unless you like the other effects.

EMULATING A TYPEWRITER

Q. I write television scripts for a living, using Word on a 1-megabyte Mac Plus and ImageWriter II printer. For professional reasons, I need a monospace font that prints at 10 characters per inch, like a standard typewriter.

I approximate what I need by writing my scenes in New York 12 and then changing the entire document to Monaco 14. The font is hideous on the screen, and I have to reset all the formatting and page breaks. Then I manually put the printer into Best mode and select Draft from the ImageWriter II dialog

box. I get something that looks reasonably close to typewriter output, but the whole process is tedious and time-consuming.

I've heard that using Courier with a LaserWriter will give me what I need, but I've already bought the ImageWriter, and besides, it is ridiculous that a \$2,500 system can't even emulate a typewriter.

L. SATIN
LOS ANGELES, CA

A. The Courier font isn't just for LaserWriters; it prints fine on the ImageWriter II, too. And it's included in a 14-point size in the Fonts file included with the standard Macintosh System software. Install the Courier family into your System file using Font/DA Mover. Use Courier 14-point to write and format your documents; it's very readable on the screen, and you won't need to reformat before printing. And it prints on the ImageWriter II at the same horizontal spacing as the Draft mode sample you sent me, though the characters are slightly taller.

WAVERING IMAGE ON COLOR SCREEN

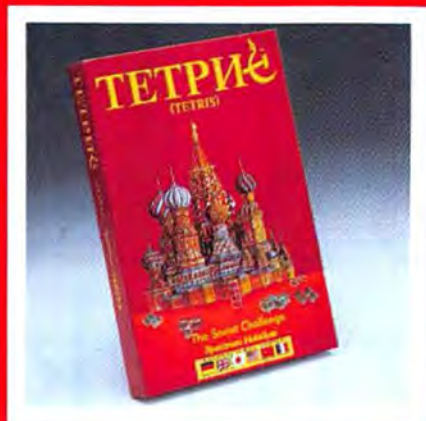
Q. I have a Mac II running with a Super-Mac XP 60/40 hard drive/tape backup and the Apple RGB color monitor. The image on the screen has a waver from side to side which waxes and wanes, occasionally undulating by as much as two or three pixels.

I have tried long monitor warmups, degaussing, moving the monitor farther away from the computer, swapping the color card, using an expensive line conditioner, and moving the system to a different room, all to no avail. When I brought the entire system into my local dealer, the problem could not be reproduced.

ANDY ZISKIND
WEST NEWTON, MA

A. If it happens at home and not at the dealership, then it's probably a grounding problem.

Because of its high scanning frequency, the Apple High-Resolution RGB monitor must be properly grounded to produce a sta-



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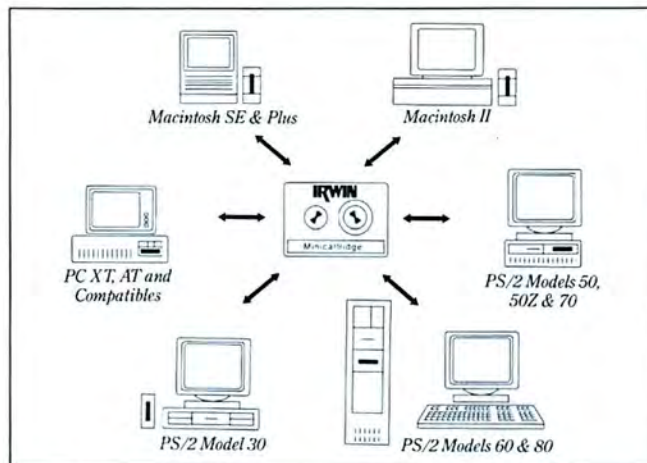


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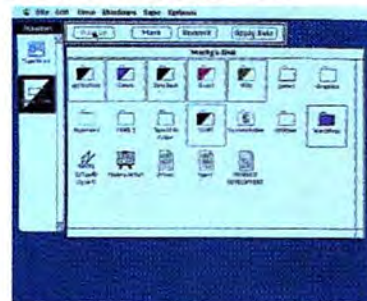
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THE HELPER FOLDER

ble image. Both the monitor and the computer must have the same solid ground connection. If you're using a three-wire to two-wire adapter on the computer or monitor's power cord, make sure the adapter's ground wire is connected to the metal screw on the wall plate.

It's also important to make sure the ground shield on the monitor cable is making good contact at both ends. With a pair of pliers, *gently* bend the metal shell on the connector inwards in several places on both ends of the cable, to make sure that the shell makes good contact with the metal sockets on the monitor and video card.

LINING UP COLUMNS IN EXCEL

Q. It seems to me a large gaffe was made by Apple and/or Microsoft in that a column of numbers in Excel, when printed on a LaserWriter, cannot be aligned properly when the columns contain negative numbers with parentheses with the `#,##0; (#,##0)` standard format. I have tried experimenting with other formats, inserting spaces, hard spaces — you name it — without any luck.

Also, when I create a document in Word on a machine hooked up to an ImageWriter and try to print it on

a machine hooked up to a LaserWriter, invariably my margins have changed and the document looks messy. I have tried to fool my machine by using the Chooser to select the LaserWriter, but the Chooser won't allow me to because AppleTalk needs the printer port.

THOMAS J. HOWARD
ARDMORE, PA

A. When using Excel, decimal numbers align only in formats with a decimal point in them: use the `#,##0.00; (#,##0.00)` format (using as many decimal places as you need). The parentheses still don't line up perfectly, but it works much better

than the example you sent me. And when copying numbers out of Excel into a word processor, be sure to use a decimal tab in the word processor to align columns of numbers.

If you're shuffling back and forth between two systems but intending to print on only one, *don't* choose Page Setup on the system you're not printing on. I'd suggest creating a "template" document on the LaserWriter system, then using a copy of this document to create your memos at home. Don't use the Chooser; don't choose Page Setup; just write and save your document, then take it into the office and print it. It

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should print just as you created it at home. Because the ImageWriter and LaserWriter have different page-printing areas, any applications that obey the margin width (such as in Word 1.05's Page Setup dialog box) will reformat a document when you choose Page Setup; applications that obey the text page width (such as Word 3.0x's rulers) will do better at printing the document the same on different printers.

STICKY PAPER

Q. I have a small but annoying problem with my new LaserWriter II NT. From the first day on, the test page has got-

ten stuck inside my machine, and I am always getting toner powder all over my fingers when I remove the page. When I reinitialize the LaserWriter, the second test page is printed correctly. The test page will also be printed smoothly when I turn the LaserWriter off during initialization before the printing starts and turn it on again. Otherwise, I have printed hundreds of pages without any problems. My dealer told me that he would have to send the machine to Apple in order to check it. But I think the problem is caused by a minor misalignment that disturbs the paper transport only when the machine is not yet warmed up.

Is it OK to use the LaserWriter or do I need a repair?

MICHAEL STUR
VIENNA, AUSTRIA

A. If this happened the first time you used your printer and is still happening now, by all means take advantage of Apple's warranty and have your machine repaired. There are no routine adjustments on the rollers inside the LaserWriter; a printer that jams regularly and predictably may have a manufacturing defect, which is exactly what the warranty — if it's still in effect — protects you against.

If the problem can't be reproduced in the shop, how-

ever, it might be the environment you're using the printer in. Humidity and temperature affect the printer and paper, and this could be causing your jamming problem. Condensation inside the printer can cause paper jams while the printer is cold; this stops once the printer warms up and the condensation evaporates.

Make sure the temperature in the room is between 10 degrees Celsius and 32.5 degrees Celsius and that the relative humidity does not exceed 80 percent. Keep the printer out of direct sunlight as well.

There are some things you can do to reduce jam-

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THE HELP FOLDER

ming. In the morning, check for condensation in the pick-up guide and feed guide plate (your LaserWriter manual has a picture of these parts). Lock up the paper in a dry and cool cabinet overnight, so it can't absorb moisture. Or remove the paper tray when powering on, and replace it after a few minutes when the printer is warm. Or do as we do at Apple: just leave the printer on all the time.

OUT OF TIME

Q. I am a happy user of a Macintosh 512KE which I have upgraded to 1 megabyte plus a SCSI port. Prior to the upgrade, I replaced a failing power supply and added a fan. Shortly after adding the Dove 524S upgrade to my system, my date and time clock failed. Nothing else seems to be malfunctioning. I took this to the local Apple dealer, who advised that I needed to replace the main logic board.

Would you know if (1) I could have done something to the computer when I installed the kit that might be reversible, or (2) if I have any alternative to replacing the logic board (like replacing a particular IC)?

DENNIS BATES

STATE COLLEGE, PA

A. If you've replaced the battery and checked the cable that connects the power supply to the main logic board and the clock doesn't work at all, and if your Control Panel settings aren't saved when you turn off the machine, then your clock chip isn't working. While this isn't common, it's not

impossible, and it probably had something to do with the upgrades. When you're upgrading your system, or having somebody upgrade it for you, make sure they're taking all safety precautions: using grounded soldering irons, anti-static wrist clips and floor coverings, and being careful not to get solder splashes on the logic boards.

Once the clock chip has failed, there's not much you can do. It's an Apple-custom chip that's soldered into the board, and there's no replacement part available. Without the clock chip, many functions of the Macintosh are going to be irritating: creation and modification dates won't be set, incremental file backups won't work, and network connections and Control Panel settings will be forgotten when you turn the power off.

Unfortunately, replacing the logic board is all you can do.

It might even be easier and safer to just upgrade to a Mac Plus logic board than to try to recover the additional memory and SCSI interface from the failed 512KE logic board.

CHANGING HARD-DISK ICONS: SORRY

Q. I would like to know how I can change the icon that represents our hard disks on the desktop. I have tried several programs (such as ResEdit, Icon Designer, and Icon Factory), but none of these programs allows me to find the hard disk icon and edit it as I do with the rest of the icons in the desktop file.

We share several hard

disks in our office, and we would like to identify each drive with a different icon. The name at the bottom of the drive's icon is not large enough, and anyone can change it.

RUDDY CORINELLE
DAVIS, CA

Our family crest has become the yin-yang symbol — it graces our wedding rings, our letters, and so on. It is a constant reminder to find the balance in and of all things.

I have been trying, to no avail, to find a way to use the yin-yang symbol in place of the Mac SE hard-disk icon — a rather boring, squat icon that does not reflect the name we have bestowed upon it, "Bountiful." I have tapped out my Mac friends' ideas on the matter and Res-Edited every icon resource I could find, all to no avail. Is it possible to change this icon, or am I stuck with aesthetic imbalance?

JONATHAN ARTHUR
LA HONDA, CA

A. Imbalance wins the day here. I found the icon in question, but it's relatively difficult and dangerous for mere mortals to change it. Here's the scoop:

When you start up a hard disk system, the driver for that hard disk (which lets the Macintosh get at the files on the disk) is loaded from the hard disk itself. That driver contains the icon that the hard disk uses. But the driver is not stored in any accessible place on the disk; it's in a special partition that you can't get at with FEdit or any other Mac tools I know of.

How does the driver get there? It's put there when you initialize or update the hard disk with Apple HDSC Setup (or a similar program for other manufacturers' disk drives). The driver is stored in the Setup program itself and copied onto the disk when you choose Update or Initialize.

So I guessed that if you found where the driver is stored in HDSC Setup, edited the icon within it, and then updated the hard disk with this modified version of Setup, it might work.

Using ResEdit, I searched the Setup program and found the driver in a type *scsi* resource with the name *%A5Init*. Down inside that resource, along with the driver's code, is the bit map and mask for the icon that the Finder eventually uses to represent the disk on the desktop.

Eureka! I said, lapsing into what Spanish I know. But I wasn't able to edit the icon successfully. Because that resource contains the actual driver code, not just the icon, it's very sensitive to changes — and if you do it wrong, *your hard disk becomes inaccessible*. I backed up the entire hard disk before experimenting, and I'm glad I did; I had to erase the disk and reformat it with a backup copy of HDSC Setup, because the icon change broke the driver.

Apparently, you need to recompile the driver from the original source code Apple provides to the drive manufacturers. To my chagrin, and to the detriment of aesthetic balance, the hard-disk icon can't be changed by mere mortals. ☹

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to compare resolution is in dots per inch (d.p.i.). Other big screens give you a compressed display, showing 82 or even 94 dots per inch. That means 10-point type looks like 7-point type. It's just too small

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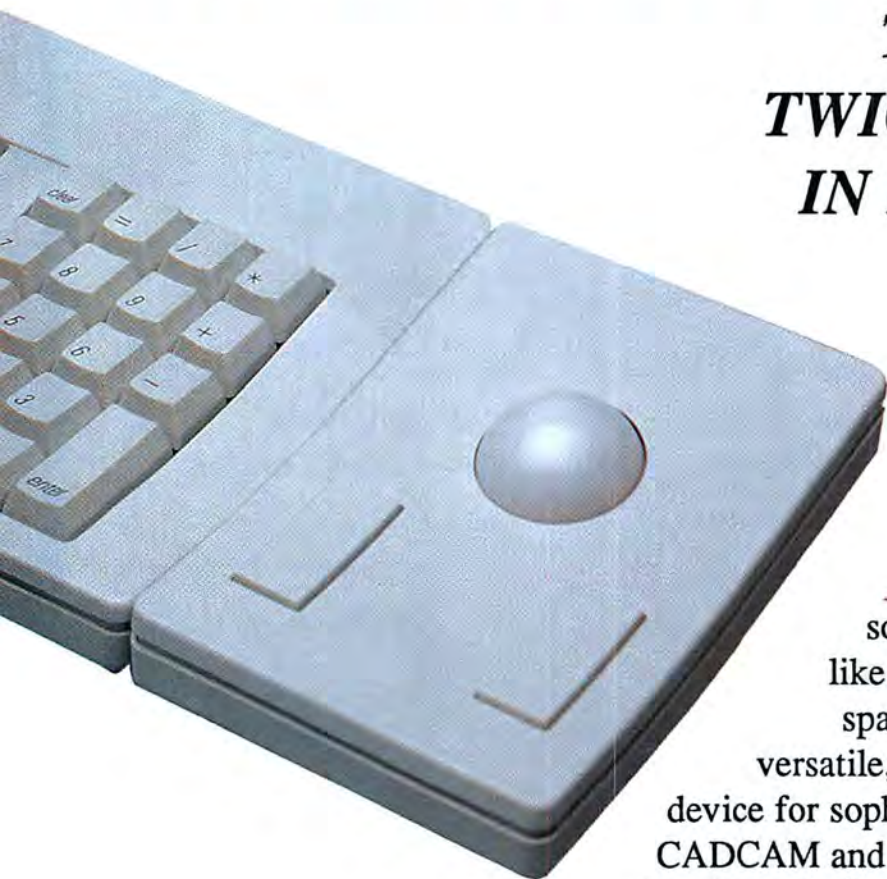


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All Features Great and Small

*Despite its colonial setting,
Macworld's Boston show saw no
revolutionary developments.*

Macworld's Boston '88 Expo saw a more subdued revolution in the Macintosh community this summer: No new and exciting technology was introduced.

You have to wonder about an event where the weather (hot and muggy) is the top story. But really, this development was a good indication of how the Mac has matured — the software has caught up to the hardware technology. Now, programmers and developers are left with the task of improving what already exists.

A few distinctive trends emerged at the Expo. Software and hardware packages are being specialized for par-

ticular markets. For example, several booths showcased advanced applications created using HyperCard.

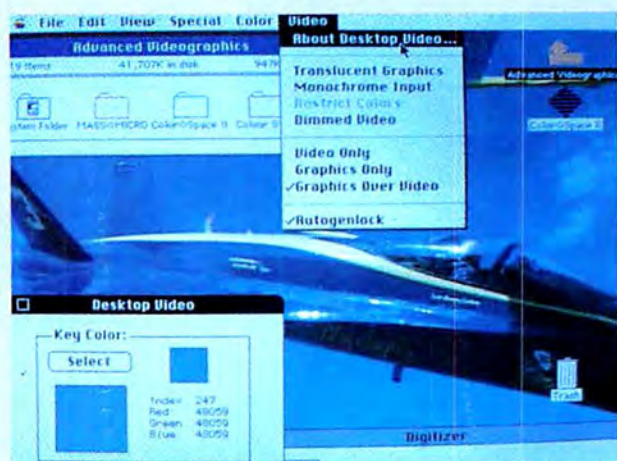
HYPERCARD HOOPLA

The more things change, the more they stay the same. When HyperCard was introduced at last year's Boston show, it was the center of attention. And so it was again this year, as Apple wished HyperCard a Happy Birthday. What's different is that HyperCard's novelty has worn off, and it is maturing as a powerful programming and application front-end tool. With its theme, "The Freedom to Associate," Apple demonstrated in two large booths (one for business and one for education)

BY KRISTI COALE

REPORTED BY

AILEEN ABERNATHY, HENRY BORTMAN, GIL DAVIS, RUSSELL ITO,
LAURA JOHNSON, SALVATORE PARASCANDOLO, BEN TEMPLIN, AND JON ZILBER



Mass Micro Systems' ColorSpace II genlock board, for the Mac II, was the top gun of video devices at the Boston show. Among its features are the ability to select any of 256 colors as the key color, a translucent graphics option, and simultaneous RGB and NTSC output. It also comes bundled with VideoWorks II.

Board 104 (\$3,495), and its 8-bit ColorBoard 108 (\$1,595).

Mac users who've long envied their Amiga counterparts finally got a taste of what lies in store for them, as Mac II video-effects boards finally appeared. This first generation consisted of a number of genlock, or video overlay, cards.

Of the genlock devices on display, the ColorSpace II (\$1,995) board from Mass Micro Systems was a clear winner. The graphics overlay was clear and steady, with no jagged or jittery edges. The board comes bundled with VideoWorks II, and as if that weren't enough, it can output to both NTSC and RGB simultaneously. Not to be outdone, RasterOps claimed to have a 24-bit color board, the ColorBoard 64 (\$3,790), that offered 640-x-480 resolution, NTSC conversion, and genlock. Two other genlock boards were also present: the previously released TV Producer from Computer Friends and the GENLOCK Converter (\$999) from Julian Systems.

HOLD THAT FRAME

Other than genlock, the big item on the video desktop was *frame grabbers*, digitizers that capture a video frame in a Mac-readable format. Five color units and as many in gray scale were being demonstrated, although most of them weren't expected to start shipping until late September or early October.

The knockout of the color grabbers came from TrueVision. TrueVision's two NuVista Videographics Adapters are 32-bit cards, and the difference between them and their 24-bit counterparts was obvious in both speed and clarity. The NuVista 4M, with 4 megabytes of on-board memory, lists for \$5,995, and the NuVista 2M, with 2 megabytes, costs \$4,250.

While TrueVision set the pace at the high end of the price scale, AST Research, Computer Friends, Data Translation, and RasterOps competed with each other for the rest of the color market. AST's NuView (\$2,099) was fast and clean and comes bundled with ReView, AST's nice color-image enhancement program that enables you to touch up your color captures. Data

how HyperCard associates with everything from a personal data manager to CD-ROM and videodiscs to main-frame databases to telecommunications.

HyperCard is increasingly being used as a front end for CD-ROM and large databases. At the high end is Oracle for the Mac (Oracle, \$199 for developer and \$999 for network, both due out November 1), with HyperSQL (Structured Query Language). HyperSQL allows HyperCard to interact with Oracle's database, providing communication with IBM mainframes. Another large database connection is HyperKRS and HyperIndexer System, KnowledgeSet's information-and-retrieval software developed to permit fast, efficient data access. This should be available in September and will sell for \$3,000.

Low-end applications include the Electronic Whole Earth Catalog CD-ROM by Broderbund (\$149.99). With more than 2,500 entries, the popular Whole Earth Catalog incorporates text, graphics, and sound. HyperSource CD (\$229) uses HyperCard as the retrieval engine for a wealth of information covering the range of products for the Macintosh, among other items. Apple has shown strong support for the HyperCard videodisc market with the release of HyperCard VideoDisc Toolkit 2.0 (APDA, or Apple Programmer's and Developer's Association, \$16.75).

The first HyperCard telecommunications product for the Mac, DashBoard (TENpoint0, formerly Activation, \$300), automatically accesses

leading on-line services such as GENie, Dow Jones News/Retrieval, and CompuServe; supports electronic mail, conferences/round tables, and bulletin boards; handles errors; downloads files in the background while HyperCard is running without MultiFinder; and more. It should appeal to new on-line users and "old-timers" who will customize it. DashBoard is expected to ship the first of the year.

Scanning the globe to bring you a constant variety of images, HyperScan, the software bundled with the newly announced Apple Scanner, directly scans images into stacks.

Stay tuned for more applications as front ends, more education stacks, and more new ways to apply this versatile tool appear.

ROLL FILM!

Despite Apple's confident proclamation last January that desktop presentations would make DTP look like a passing fad, presentations have failed to take off — and many attendees expressed doubts that they ever will. Ironically, one reason may be the sudden emergence of desktop video. Video was everywhere, and animation packages like VideoWorks II and ShowCase FX were clearly stealing some of the thunder from presentations.

It took some time, but the Mac's color barrier finally broke wide open. A host of non-Apple, Mac II color boards were introduced, and many of them did a good deal more than provide signals to the monitor.

Among the more notable contributions were RasterOps' 24-bit Color-



BRAVO

MacCalc

Of the many spreadsheets available, one and only one gives you the ease of learning, ease of use, raw speed, and the most visually compelling and flexible formatting available — MacCalc.®

A basic reality of the use of computers and software is that faster is better. Period. MacCalc is the fastest spreadsheet. Period. Faster than Excel, faster than any other Mac spreadsheet. And that's not just opinion; this fact has been proven repeatedly in tests by MacUser, MacWorld, MACazine, MacWEEK, & InfoWorld. MacCalc's incredible performance lets you work more smoothly — more naturally.

Speed

Ease

MacCalc was designed to give every level of user easy access to all of its capabilities, so all of that speed doesn't go to waste while you learn the program — you get flying right from the start. MacWeek summed it up rather well, "MacCalc answers the frustration of Excel users — MacCalc is exceptionally easy to use."

With desktop publishing level formatting abilities, MacCalc users produce stunningly professional presentations of their information, and that lets them get their point across not only faster, but better. With unique fonts, sizes, styles, and/or formats for each cell, individually variable row heights as well as column widths, you can highlight important numbers, make titles stand out. . . in other words, make your point.

Style

MacCalc's extensive list of features include: Lotus 1-2-3 file/SYLK data compatibility; cell notes; on-line help; intelligent database functions; keystroke macros (via Apple's MacroMaker); and much more.

With MacCalc's list price only \$139, Infoworld concluded that MacCalc is "the clear value leader." MACazine stated unequivocally that "MacCalc is the spreadsheet of choice for those who want useful functionality without undue complexity," and finally concluded "... [MacCalc] is a must have."



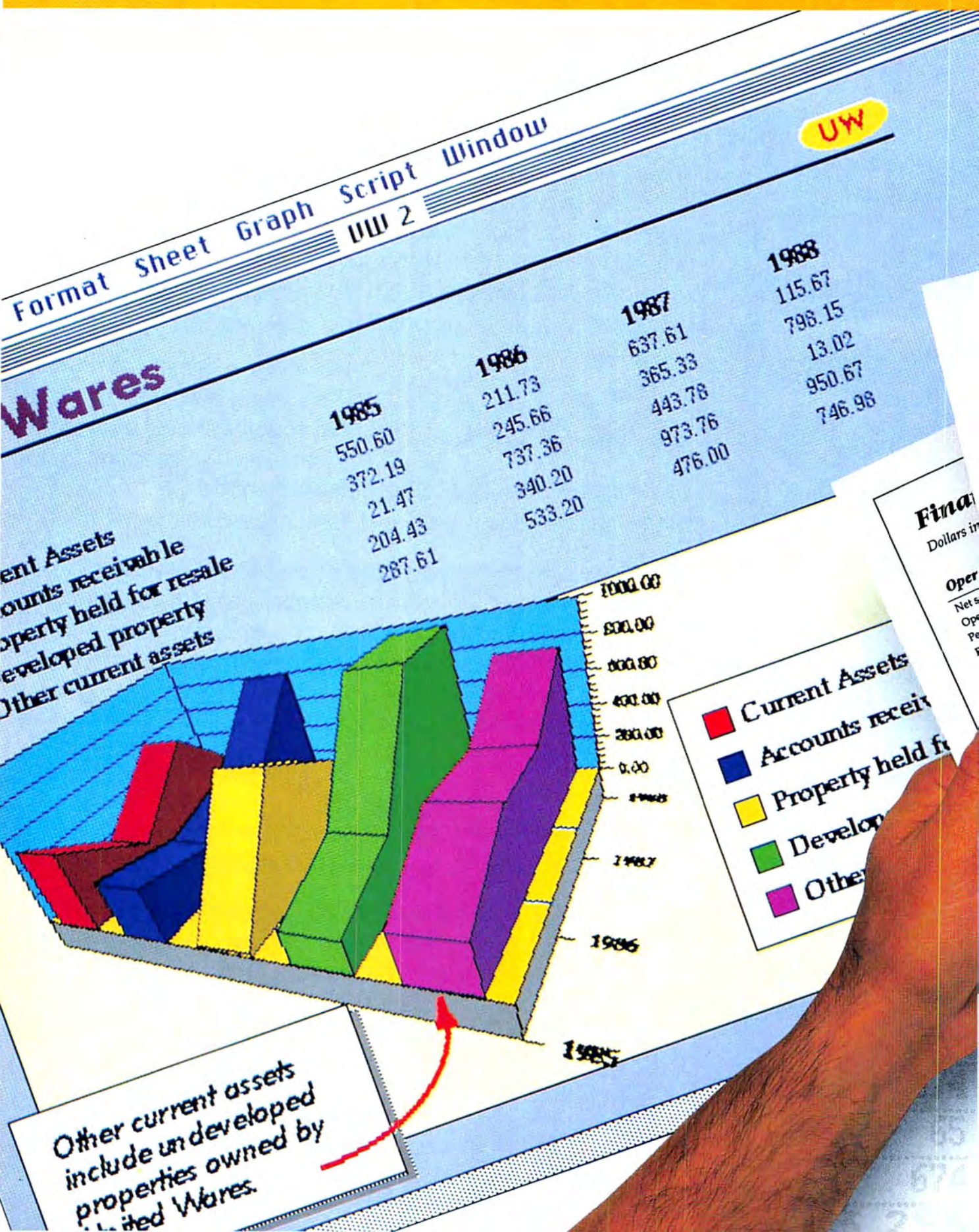
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BRAVO

Bravo Technologies, Inc.

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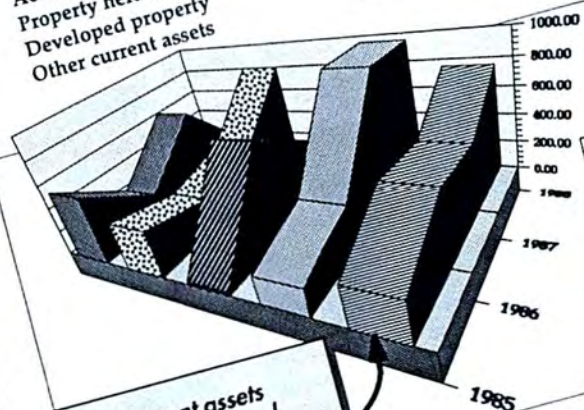


United Wares

Assets

Current Assets
Accounts receivable
Property held for resale
Developed property
Other current assets

	1985	1986	1987	1988
Current Assets	550.60	211.73	637.61	115.67
Accounts receivable	372.19	245.66	365.33	798.15
Property held for resale	21.47	737.36	443.78	13.02
Developed property	204.43	340.20	973.76	950.67
Other current assets	287.61	533.20	476.00	746.98

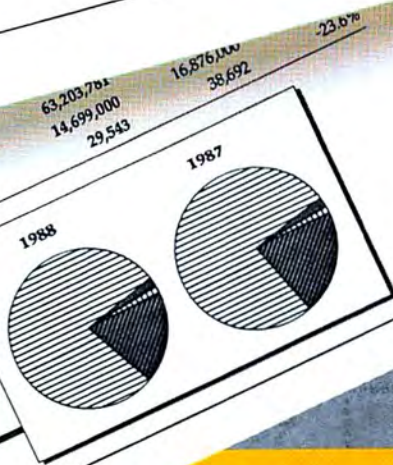


Other current assets include undeveloped properties owned by United Wares.

■ Current Assets
▤ Accounts receivable
▨ Property held for resale
▧ Developed property
▩ Other current assets

Long-term debt
Shareholders' equity
Per common share
Common shares outstanding
Shareholders of record
Employees

■ Working capital
▨ Property, plant and equipment
▤ Long-term debt
▧ Shareholders' equity
▩ Per common share
▨ Common shares outstanding
▧ Shareholders of record
▩ Employees



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social security no.

ty Act and
k Reduction
see page 31.

"Yes" will
tax or
reduce your refund.

number above

is your child but not

Spouse

THE ULTIMATE PRESENTATION SPREADSHEET.

WINGZ



INFORMIX

INSIDE WINGZ

Spreadsheet

- **Worksheet size:** 32,768 rows by 32,768 columns.
- **Hierarchical menus:** Certain menu items bring up a sub-menu.
- **Speed:** Average recalculation is substantially faster than other spreadsheets.
- **Sparse matrix memory management:** Wingz allocates memory only for cells that contain data, for most efficient memory use.
- **Minimal recalculation:** Wingz recalculates only cells affected by a worksheet change, reducing calculation time.
- **Calculation options:** Wingz has automatic, and manual recalculation, as well as natural, row, column, and iterations.
- **Linking:** Any formula can refer to any cell on any worksheet in memory.
- **Naming Capability:** Identify cells by names rather than cell locations.
- **Fill:** Fill a range with numeric or time series information.
- **Consolidation:** "Paste Special" command pastes formulas, values, formats. Combine information from two ranges on a single worksheet or from two different worksheets.
- **Insert, Delete, Cut, and Copy:** Applicable for any range of cells. Paste formulas, formats, values.
- **Auditing:** Built-in tools check cell relationships.
- **Security:** Protect your Wingz worksheets with passwords (read/write or read only) plus data encryption.
- **Annotated Cells:** Add notes to any worksheet. Then hide, view, or print them.
- **Adjustable Rows and Columns:** Rows and columns can be resized.
- **Cell Selection:** Select discontinuous ranges of cells for manipulation.
- **Find:** Search worksheet for specific text, value, formula, or other criteria.

Built-in functions include:

Business functions: BONDPRICE(yld, value, rate, ytm, pmts), BONDYTM(price, value, rate, ytm, pmts), CTERM(int, kpv), DOB(cost, salvage, life, period), FV(pmt, int, term), FV(pmt, int, term), INTEREST(prin, pmt, term), IRR(guess, range), LOANTERM(prin, pmt, int), NPV(int, range), PMT(prin, int, term), PRINCIPAL(pmt, int, term), PV(pmt, int, term), PV(pmt, int, term), RATE(kpv, term), SLN(cost, salvage, life, period), SYD(cost, salvage, life, period), TERM(pmt, int, fv).



What you see is what you get with Wingz. Presentation graphics, spreadsheet data, and text all on one page.

Date/Time functions: ADATE(datenumber, picture), ADDDAYS(datenumber, days), ADDHOURS(datenumber, hours), ADDMINUTES(datenumber, minutes), ADDMONTHS(datenumber, months), ADDSECONDS(datenumber, seconds), ADDEYEARS(datenumber, years), ATIME(datenumber, picture), CMONTH(month, weekday, weekday), DATE(year, month, day), DATEVALUE(datestring), DAY(datenumber), DAYNAME(datenumber), HOUR(datenumber), MINUTE(datenumber), MONTH(datenumber), MONTHNAME(datenumber), NOW(), SECOND(datenumber), TIME(hour, minute, second), TIMEVALUE(timestring), YEAR(datenumber).

Logical functions: FALSE(), IF(condition, x, y), ISBLANK(cell), ISERR(), ISNA(),

ISNUMBER(), ISRANGE(), ISSTRING(), TRUE(),

Statistical functions: AVG(itemlist), COUNT(itemlist), MAX(itemlist), MIN(itemlist), STD(itemlist), STDEV(itemlist), SUM(itemlist), SUMSQ(itemlist), VAR(itemlist), VARIANCE(itemlist).

Database functions:

DAVG(input, offset, criteria), DDCOUNT(input, offset, criteria), DMAX(input, offset, criteria), DMIN(input, offset, criteria), DSTDEV(input, offset, criteria), DSTDEV(input, offset, criteria), DSUMSQ(input, offset, criteria), DSUMSQ(input, offset, criteria), DVAR(input, offset, criteria), DVARANCE(input, offset, criteria).

Text functions:

CHAR(x), CODE(text), COLLATE(text, text2), CONTAINS(text, searchtext), CURRENCY(x), EXACT(text, text2), FIND(searchtext, text, start, LEFT(text, n), LENGTH(text), LOWER(text), MATCH(text, searchtext, start), MID(text, start, n), N(Range), NFORMAT(x, format), PROPER(text), REPEAT(text, n), REPLACE(text, start, n, newtext), RIGHT(text, n), S(Range), STR(x), STRING(x, n), TRIM(text), UPPER(text), VALUE(text).

Spreadsheet:

CELL(), CELLTEXT(cell), CHOOSE(n, itemlist), COL(), COLS(Range), ERRI(), HLOOKUP(x, range, column, INDEX(range, column, row), INDIRECT(text), MAKECELL(column, row), MAKERANGE(column, row, column2, row2), NAI(), RANGE(text, ROW(), ROWS(Range), VLOOKUP(x, range, row).

Numeric functions:

ABS(x), ACOS(x), ACOSH(x), ASIN(x), ASINH(x), ATAN(x), ATAN2(x, y), ATANH(x), COS(x), COSH(x), DEGREES(radians), E(), EXP(x), EXPONENTIAL(x), FACTORIAL(x), GOAL(initial, result, formula), GUESS(), INT(x), LN(x), LOG(x), LOGN(x, y, base), MOD(x, y), NORMAL(x), PI(), RADIANS

(degrees), RAND(), ROUND(x, n), SIGN(x), SIN(x), SINH(x), SORT(x), TAN(x), TANH(x), UNIFORM(x).

User-defined functions:

Create custom functions using HyperScript language.

Hundreds of HyperScript functions:

Hundreds of other functions are available through the HyperScript language. These functions fall into four basic categories: COLOR, ENVIRONMENT, CONTROL, and MISCELLANEOUS.

Presentation capabilities

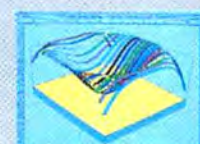
Display Options: Print graphs, text, numbers, and clip art all on one page. Use all font types and sizes in your Macintosh system. Access up to 16 million colors and/or 38 patterns. Complete control of attributes such as background and foreground colors, fill patterns, object borders, etc. Variable row heights and column widths. Changeable grid color and size. Turn grids, row and column headers, entry bar, tool box, and worksheet off and on.

Alignment Options: Left, right, center, general.

Number and Date Formats: 14 number and date formats built-in; create customized formats. Negative numbers can appear in red, or any other color you choose.

Text fields: Blocks of text (text fields) can be placed on the worksheet. Editing features include tab, indent, word wrap, search and replace. Change fonts and font attributes down to the individual character. Can reference formulas in a spreadsheet.

Object Orientation: Charts, free hand drawings, text fields and controls including HyperScript buttons are considered objects. Objects can be overlapped, covered, removed, resized, and repositioned in any order. Any number of objects can be attached to a sheet.



No Macintosh software makes it so easy to create such vivid 3-D graphics.

Graphics

Drawing Tools: Design objects with special drawing tools: Straight line, Arc, Circle, Square or Rectangle, and Polygon or Polyline.

Lines and Arrows: Adjustable line widths, 38 different fill patterns, and any combination of colors. Can be resized or repositioned anywhere on worksheet.

Graphic Elements: Graphic images, clip art, photographs, PICT files, etc. imported on the Wingz clipboard can be used.

Charts and Graphs

Chart types: Twenty basic chart types: both scientific and business

oriented: 2-D Bar, Line, Layer Step, Combination, Horizontal bar, Pie, Hilo; 3-D Bar, 3-D Line, 3-D Layer, 3-D Step, 3-D Combination, 3-D Pie, XY, Scatter, Polar, Wireframe, Contour, Surface. Unlimited number of graph types can be created through user modification.

Data smoothing:

User controllable. **Unlimited graphs per worksheet:** Multiple graphs can be created from either the same data or different sets of data within a Wingz worksheet.

3-D Graphs: Three dimensional graph options: Unlimited permutations of 3-D graphs through graph rotation, elevation, and variable perspective (distance) alterations.

Layout Options: Automatic or manual chart layout options.

Legends: Can be automatically created and labeled.

Axis scaling: Manual or automatic. Linear, logarithmic, or percent scales.

Grid display: User modifiable grid and axis.

Data Prints: 32,768 data points per series.

Dynamic Linkage: Automatically redraws charts and makes appropriate changes in text fields when spreadsheet data changes.

Database

Use spreadsheet as a database: Allows for quick and easy organizing, filing, sorting, and retrieving of data in any spreadsheet.

Sort: Sort as many as 256 keys.

Operations: Find, Extract, Delete, and Sort.

Number of records: Up to 32,767 records. Actual size limited only by memory.

Database selection criteria: Extract or link the information you need.

Application Programming Language

HyperScript: Complete programming language: English-like. Event-driven. A series of commands can be executed by a single event such as the click of a button.

Programming features: Classic, powerful programming features include IF-THEN-ELSE, CASE statements, DO-WHILE looping, FOR-NEXT loops, PROCEDURES, Global and local variables, complete set of drawing commands (2D and 3D), etc.

Customization: User-definable menus, advanced controls (buttons, sliders, and number wheels), dialog boxes, and functions.

Buttons: Automate virtually any action by executing a HyperScript program.

Learn Mode: Allows recording of scripts for replay or edit purposes.

Import/Export Capabilities: Read and write files from other Macintosh and DOS spreadsheet programs, including: Excel (SYLK) or Lotus (WKS, WK1), as well as DIF and ASCII file formats.

Printing
Print Preview: Shows entire page, its layout, and page breaks.

Page features: Headers, footers, titles, margins, print formulas or values.

Hide/Show features: Hide or show worksheet information, fixed titles, cell notes, text fields, grid lines, buttons and controls, graphics including lines, squares, etc.

Printers: Printers supported by the Apple print drivers, including LaserWriter, LaserWriter Plus, LaserWriter II, ImageWriter II, and ImageWriter LD printers. Wingz also supports a range of additional hardware including color printers which support PostScript and Apple QuickDraw Commands.

Color Printing Capability: Requires compatible printer or plotter and driver software.



Wingz can create dramatic engineering graphs that lend visual clarity to complex data.

Other Wingz features
Fully supports Macintosh user interface for increased ease of use. Utilizes all memory on any Macintosh.

Extensive keyboard interface utilizing Apple Extended keyboard function keys.

Comprehensive, on-line help. Help displayed on screen at same time as active worksheet. Multiple help windows may be open at one time. Network support with automatic file- and record-locking, and data encryption.

Wingz is not copy-protected.

Hardware and Operating System Requirements

Wingz requires a Macintosh Plus, SE, or II with one megabyte of memory, and two diskette drives or one hard disk. Two megabytes of memory is suggested when running MultiFinder. A hard disk is recommended.

Wingz supports the Macintosh operating system, and will run under system version 4.1 (Finder 5.5) or higher. Wingz also runs under MultiFinder.

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A typical TrueCapture setup might include an RGB video camera, TrueCapture 324 card, and the ColorBoard 104 from RasterOps to display the captured image in full 24-bit color.



PhotoMac is a color-capture program that lets you do practically anything to a color photograph, including retouching, color correction, design changes, proofing, and four-color separations — all in 24-bit color.

Translation's ColorCapture (\$2,595) is the color successor to their gray-scale QuickCapture board. In addition to good color-capture capability, it also offers genlock. RasterOps' TrueCapture 324 (\$2,495) produced crisp, clean captures but didn't offer any extras.

Color capture was only warming up as PhotoMac (Avalon, \$695), a color-retouching program, made its debut. Due out in November, it lets a user retouch a captured frame in much the same way that Image Studio and Digital Darkroom do for gray-scale images.

Once a user starts working in video, the multiplicity of "standards" becomes a problem. The biggest issue involves converting NTSC (composite) video into RGB. A number of companies were showing boards and boxes that do just that. Among these were Julian Systems (NTSC Converter, \$599), Pixelogic (ProViz Color Video Converter, \$595), RasterOps (ColorBoard 100, \$2,495), and TrueVision (VIDI/O BOX, \$750).

Although not a converter per se, The Box (The Voyager Company, \$199) was a surprise hit. This little goodie makes it possible to plug a standard home videocassette player into a Mac for external control — just like the more expensive industrial units.

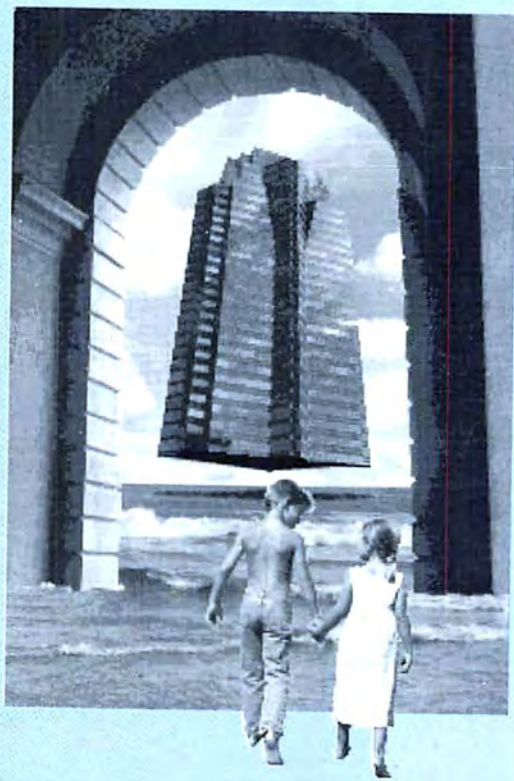
BETTER BACK IT UP, BUDDY

Desktop video took on a second definition — not on-screen, but as a back-up and storage device. Genius, PCPC, and Blackhole Technology all showed devices that use a conventional 8-millimeter videocassette to hold a whopping 2 gigabytes of information per tape. The units are all in the neighborhood of \$6,000 and capable of reading information at 15 megabytes a minute. Although the SCSI bus on the Mac II writes only 7 megabytes a minute, the units will be primed and ready when the SCSI port is accelerated — an improvement that is rumored to be in the works for the next Mac Expo.

PRESENTING SOLUTIONS

Presentation packages have bred related products that aid in the presentation process. Reach out and touch your Mac with Mac 'N' Touch from Micro-

The highly regarded Digital Darkroom from Silicon Beach made a splash debut at the Boston Expo. Without a gray-scale shadow of a doubt, it's the most powerful monochrome image-manipulation program for the Mac.



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Touch (\$495 for the SE controller card kit, \$650 for the Mac II 14-inch screen, and \$738 for the Mac II 19-inch screen kit). With a screen sensitive to touch by fingers, pens, or pointers, Mac 'N' Touch emulates the mouse — users touch the screen where they want the cursor to go. Mac 'N' Touch will work with all applications available for the Mac SE and the Mac II.

Kodak was showing off another tool for the presentation genre of programs. Kodak Datashow remote control (\$245) gives the user cordless access to keyboard commands. It is compatible with the Mac SE, the Mac II, and all future Apple computers using the Apple Desktop Bus (ADB) architecture.

EVERYTHING'S COMING UP COLORS

Paint programs have truly come of age. Like PixelPaint, with its innova-

tive features, the latest offerings do much more than mimic conventional art. They're fast and abound with special effects made possible by tapping the Mac II's computing power.

PixelPaint 1.1 (\$495, SuperMac Software) features faster image manipulation and printing. It can save larger (1,024-x-1,024) files and now converts 24-bit color files to best-fit 8-bit color images. PixelPaint Professional adds Pantone colors, color synthesis by dithering, and a masking tool. CANVAS 2.0 (\$299.95, Deneba Software) now has full color and instant paint/draw switchover. Some CAD features include unlimited layers, guidelines, area and perimeter calculation, and dimension lines. With its continuous Bezier curves and auto-tracing tool, CANVAS begins to put its nose into Illustrator 88's tent — one of the best values of the show.

FreeHand 2.0 (\$495, Aldus), unre-

leased at Expo-time, features an auto-trace tool, a knife tool for splitting paths, mixed fonts and sizes in one block, custom fill patterns, and fills that are shaped according to the filled object. You'll be able to undo your most recent 100 operations.

PLENTIFUL PICK 'O' PRINTERS

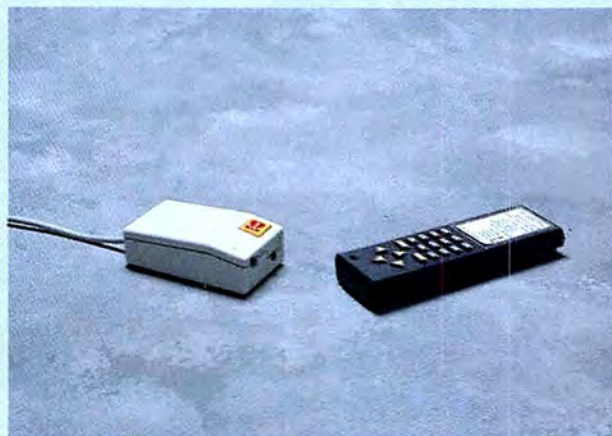
To help in getting the most out of these souped-up paint programs are companies producing printers and scanners. GCC Technologies (née General Computer Corporation) was previewing its WriteMove printer (not color). Although the company is touting it as the perfect printer for portables, it could also emerge as an ideal impersonator for ImageWriters. The list price (\$699) isn't much more than an ImageWriter, and it adds a number of benefits and features. Not only is it small and lightweight, but it's also quiet, since it uses ink-jet, not dot-matrix, technology. On the software side, it adds features like spooling and scaling.

QMS is offering MacJet, a \$249 software product that lets Macintosh users print to any one of the more than 500,000 HP LaserJet II printers sold to individuals and businesses. Outline fonts are supplied with MacJet so that text is printed with the same smoothness and high resolution expected from PostScript printers.

Sharp introduced its new JX-730 color ink-jet printer and JX-300 color scanner, both scheduled to ship this fall. The 180-dpi printer (\$1,995) is a significant upgrade from Sharp's JX-720, with separate ink reservoirs and a printing time of one page per minute. Sharp's new 300-dpi color scanner is a downsized, less costly version of the JX-450. With a price of under \$5,000, the JX-300 should satisfy the needs of many small businesses.

TOP CAD

CAD packages were in full force. Imported from other platforms or evolved from humbler beginnings, they are more abundant than the draw programs of yesteryear. Multiple layers, Bezier curves, automatic annotation of dimensions, views that are accessed by name, and parts libraries



Kodak's Datashow remote-control device gives you cordless access to keyboard commands. Buttons let you advance items in a presentation. You can also use it to manipulate figures on-screen.



GCC's WriteMove printer demonstrates that good things can come in small packages. It uses ink-jet technology and is capable of spooling. At \$699, it's pretty competitive with the ImageWriter.

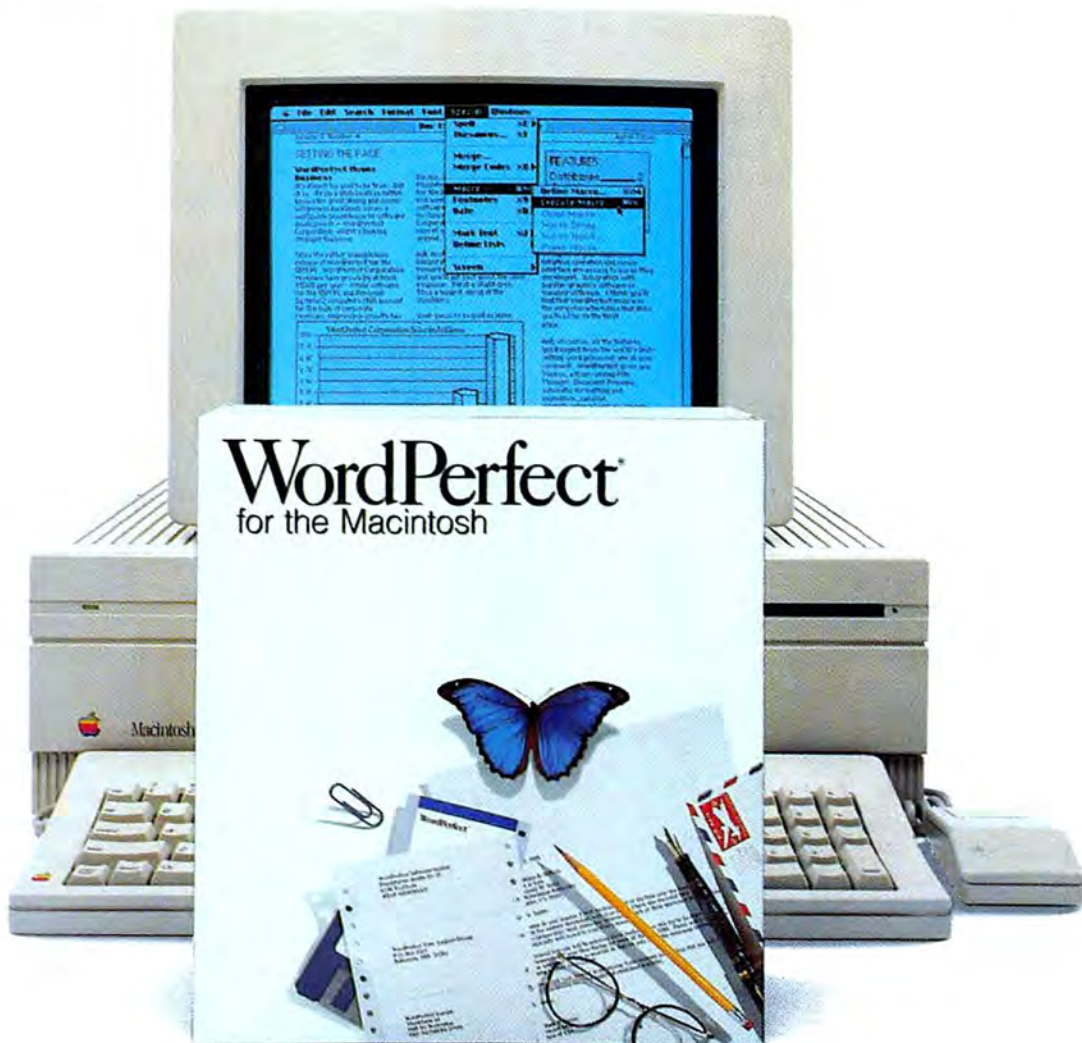
How to impress the powers that be with the power that is.

Chances are your bosses don't have a full appreciation of your Macintosh. It's powerful, nice to look at, and it's great with graphics—they'll grant you that much. But does it have a way with words?

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All Features Great and Small

Dr. RAM's Memory Medicine Show

RAM is the snake oil of the '80s. Prices at the Boston show ranged from a low of around \$360 to a high of about \$480, and some of the operations looked so shady you half expected a guy in a trenchcoat to accost you in the cloakroom ("Psst, buddy! Wanna buy some SIMMs?"). One guy actually showed up on the last day and set up in an empty booth with a handwritten sign.

And it wasn't just the price that was the issue. Some sellers had trays of SIMMs for display but refused to hand them over until after the buyer's check had cleared — well after the show had ended and the seller was on the road, of course. Don't fall for these pay-now, own-later programs. Save your money for something really important, like miracle hair-growing tonics.

— Russell Ito

constitute the new crop of obligatory features.

Dreams 1.0 (\$500, Innovative Data Design) is MacDraft's full-color big brother that packs true CAD features with a well-designed interface. Dreams imports and exports DXF and IGES files along with PICT and can be expanded with add-on modules. Building upon the features in MacDraw II is Claris CAD (\$799), a 2-D application designed for beginners as well as high-end users. Owners of MacDraw II can receive an upgrade to Claris CAD for \$399. And over in the plain wrap aisle, Generic CADD Level 1 (\$99.50, Generic Software), is a line-based tool touted as an inexpensive introduction to the CAD world.

Taking off on CAD technology are 3-D packages, a genre well-represented at the show. One such package was DynaPerspective 1.0 (\$1,495, from Dynaware), a high-end 3-D color-design tool with wireframe and solid rendering, and optionally transparent colored objects. High precision is possible. Still in beta but showing nonetheless was Model Shop (Paramcomp, \$495). This full-color 3-D modeling package has features similar to those in DynaPerspective, but this package is a lot cheaper.

To process images, Silicon Beach showed off Digital Darkroom 1.0 (\$395). Without a gray-scale shadow of a doubt, it's the most powerful monochrome image-manipulation program on the Mac. Beyond the smoothing, blending, and contrast change functions, Digital Darkroom can rotate and distort selected areas and mix variable percentages of two

overlying images for ghost-like effects. It's a must-have package.

WAS THAT A WORD PROCESSOR?

It looks like word processors are finally preparing to step out from the shadow of page-layout programs. The previous crop of word processors looked like wanna-be page-layout programs: First they added multiple columns, then came rules and boxes, extended graphics import capabilities, and as many bells and whistles as could be crammed in.

The latest crop takes a different tack — you might call it the dawn of "smart" word processing. They leave page layout to page-layout programs and add value in a variety of ways. For example, MarkUp (from Mainstay) adds group editing abilities that let you keep track of who made what changes to which version of a document. (Pricing and availability had not been decided at press time.) ArchiText (from Brainpower, \$349.95) enables you to map out relationships among multiple word-processing files.

OR WAS THAT DTP?

Purveyors of DTP packages were hawking upgrades of page-layout programs and fonts. QuarkXPress 2.0 (\$795) is out, and we were knocked out by the improvements to an already great program. It's the only layout package to offer 24-bit color (PhotoMac images can be imported), and it can do color separations on graphics imported from Illustrator 88.

On the typeface front, everybody and their mother announced new PostScript fonts: Adobe, CasadyWare,

Springboard, and Compugraphic. But that wasn't all; Bitstream announced a September release for MacFontWare, which has ten type families (\$195 each). Also throwing its hat into the ring was Altsys, who set an October ship date for KeyMaster (\$100), a nifty program that enables you to turn graphics into font characters.

BRIDGE OVER TROUBLED WATERS

One of the most significant steps forward in Mac connectivity was not discussed much on the Boston Expo show floor: the integration of Apple's AppleTalk network system with DEC's DECnet/OSI. This, along with other such announcements, was discussed at the first joint Apple Digital Developer's Conference just prior to the show. Several announcements detailed how the two sets of network protocols will be more tightly and transparently integrated. Also significant was the publication of the spec for CL/1 (Network Innovations), a language designed to provide Macintosh applications easy access to SQL databases running on minis and mainframes. Apple announced support for DEC's Compound Document Architecture (CDA) and the Digital Document Interchange Format (DDIF) as standards for translating among dissimilar file formats. While currently a sleeper, this could prove to be a god-send if it actually takes off — and works.

Meanwhile, back on the show floor, acceptance of the AppleTalk networking system, in particular AppleTalk Filing Protocols (AFP), was one of the important trends evident at the Boston Expo. Novell was demonstrating its Macintosh connection on the show floor and promising to ship NetWare for Macintosh in the fourth quarter of 1988 and sell for \$200 per customer site. But you must also have the NetWare server hardware and software, which cost an additional several thousand bucks.

3Com announced that it will support the Macintosh on its 3+ Open LAN Manager network operating system. DayStar Digital announced that it will ship an MS-DOS-based AppleShare server, dubbed the FS100 (\$995

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for PC version, \$1,195 for PS/2 version), in September 1988. Alisa Systems was demonstrating AlisaTalk (\$4,700 to \$21,500, depending on which VAX you have), VMS-based software, which includes AlisaShare, an AFP server that shipped last June.

On other fronts, a number of companies announced or were shipping new Ethernet connections. Kinetics was selling its FastPath 4 (\$2,495), an upgraded version of its earlier FastPath products. Upgrades for FastPath 2 and 3 owners will be available in October. Dove began shipping FastNet

III (\$599), a NuBus Ethernet card that supports several protocols including AppleTalk. 3Com announced EtherLink/SE, a direct Ethernet connection that installs inside a Mac SE, to ship in December and sell for \$595. And Cayman introduced its GatorBox (\$3,495), which transparently connects LocalTalk to Ethernet — no software needs to be installed on any machine.

ODDS, ENDS, AND OTHER TRENDS

CD-ROM drives must have been feeling like the Maytag repairman

these past few months: lonely. Not to worry, though, because now there's at least a smattering of software to play with. Three massive disks of public-domain and publicly distributable software — from the Boston Computer Society (\$99); BMUG, formerly the Berkeley Macintosh Users Group (\$100); and from Educorp (\$299.95) — were for sale at the show. Each includes hundreds of megabytes of shareware covering a broad range of applications.

On the groupware scene, Farallon announced Timbuktu Remote, which

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gives users remote control of another Mac on a network or by modem. CE Software is in fact shipping Quick-Mail, an E-mail system that has a conferencing feature. On the subject of mail systems, Dayna announced its own DaynaMail (Dayna also announced its own LocalTalk system, DaynaTalk, which works within the AppleTalk protocols). DynaMac unveiled its portable SE with an ADB Bus card and hard disk (optional). This will sell for between \$5,895 and \$9,895, depending on system specs.

Two long-awaited products did not

ship at the show. If they're still not out by the time you read this, they've turned into either vapor products or pumpkins. They are Wingz, Informix's challenger to Excel's spreadsheet throne, and Finale, the music-transcription software from Coda Music Software. Both are expected to ship by September.

Overall, the Boston Expo demonstrated that the Mac has indeed gone mainstream. Hackers in their torn jeans were in short supply on the show floor. Seemingly they were replaced by corporate players in three-piece suits.

In some respects, this is a good sign — the Mac is penetrating once-impermeable markets. In other respects it was a tad disconcerting. Let's hope the hackers never get totally lost in the corporate shuffle. We'll keep an eye out: next stop, San Francisco. ☞

A NATIVE CALIFORNIAN, ASSISTANT EDITOR KRISTI COALE SHOCKED THE MACUSER STAFF (MOST OF WHOM ARE FROM THE SOUTH OR EAST COAST) BECAUSE SHE DIDN'T EVEN BREAK INTO A SWEAT AT THE BOSTON EXPO.

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Now We Are Six

System Software Update 6.0 fixes some problems and improves the Mac's most basic software package. But it also raises serious questions about compatibility and bugs.

The first thing you notice is the box. It's a lot bigger than that for System Software Update 5.0. Does that mean there's more to this release? Unfortunately, the answer is no. Except for much better MultiFinder stability and some new files, there's not much here to attract you. The documentation is another story — stuff that Apple should have produced a long time ago. But \$49 for a pair of manuals that rarely get into power-user usage is a steep price.

When Apple released System Upgrade 5.0 late last year — it was called the September '87 release but didn't show up until much later in the year — it promised regular System software updates in the future. System Software Update 6.0 is Apple's next and most recent offering.

Although it's also called the April '88 update, it was released electronically in mid-June, and boxed copies with documentation started reaching dealers about a week later. As with the

5.0 release, you can get it — if you want it or need it — in a variety of ways. You can buy a new Macintosh, and the new software will either be in the box or you'll be given a card that lets you get a copy from Apple. Some dealers — all should, but some might not — will either copy it for you or let you copy it from their store master copies (see "6.0 at the Deadline," which accompanies this article). If you ask dealers to do that, be sure you provide them with four formatted, blank 800K disks.

The software is also available from most user groups. They'll probably charge their standard group disk rate (which is typically between \$5 and \$10 per disk). You can also download the software from many local bulletin boards and all the national electronic services (such as MAUG on CompuServe, GENIE, and Delphi). Be aware that there are some pitfalls with electronic acquisition (see the sidebar "Electronic Acquisition").

BY JAKE PADEN

The final way to update is to buy the boxed System Software Update Version 6.0 package from an Apple dealer. Buying the package is the only way to ensure you're getting the extensive documentation for this update. Other reasons for getting the whole package include acquiring the Apple-copied disks (they're no more reliable than anyone else's, but Apple does stand behind them) and saving time. You neither have to wait for a user-group meeting nor copying service, and electronic acquisition is very *slow* (downloading all the necessary files takes hours).

We went to our local ComputerLand and bought the boxed copy that's reviewed here. We paid full list for it. We also tested the version that was sent to most developers several weeks before the actual release and the System 6.0 files that are available electronically. In most cases we observed no differences between them. Unless specifically noted, this review covers the boxed release.

FIRST THE NEW

Almost every file that the 5.0 package contained has been changed. The System is bigger, the Finder is much bigger, and there are lots of fixes throughout the package.

Version numbering is still as screwy as always. The System version number jumped from 4.2 to 6.0, whereas the Finder went from 6.0 to 6.1. Most of the smaller files incremented their version numbers by 0.1 (the Control Panel cdev went from version 3.2 to version 3.3). However, the Font/DA Mover, the LaserWriter driver file, the Laser Prep, and some other files all jumped 0.2. This style of version numbering might be fine for internal use in a software company, but it's ridiculous for releases to the general public. Every file in this package should have the same version number. More than ever, Apple needs a Version Number Czar to sort through the current chaos.

All the old files are there, and there are 11 entirely new files: a LaserWriter IISC driver, the Map program,

the CloseView program, MacroMaker (with a Help and a Macros file), Responder, and four Installer Scripts (one each for the Plus, SE, and II and one for AppleShare) that create minimal Systems for use when space is a big problem.

The LaserWriter IISC printer driver has been available since the printer was released. Its appearance here marks the first time it's been included in the System Software Updates. It's necessary only if you are using the LaserWriter IISC.

The Map program is what is called a cdev, or Control Panel device. It works only with Systems 4.1 and later. To use it you simply drag its icon into your System folder. Then you run Map by selecting its icon from the scrolling list that appears at the left side of your Control Panel DA.

Map is a world map. It comes with a preset list of cities (recorded by name, latitude, and longitude). You can set your Current Location and then either click on a city and get the distance (in great circle miles) from your location or type in a city's name, and it will flash its location (and tell you how far it is from the Current Location). You can discover the distance between any two cities fairly easily. If the list of cities and locations Map provides is inadequate, you can add more at will, providing you know their latitude and longitude. If that information is not available, you can do cruder positioning based on rough approximations of time zones.

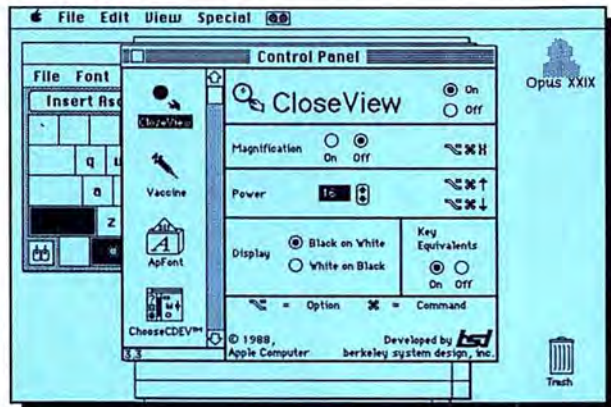
Map will reset your Mac's internal clock if you change the Current Location. Therefore, you should make sure the Current Location is the actual location of the Mac.

The Current Location is permanently stored in parameter RAM (PRAM) along with the time. Applications such as travel-information programs and HyperCard can use this information directly, just as they can use the time settings. This, apparently, is the real reason for Map's existence.

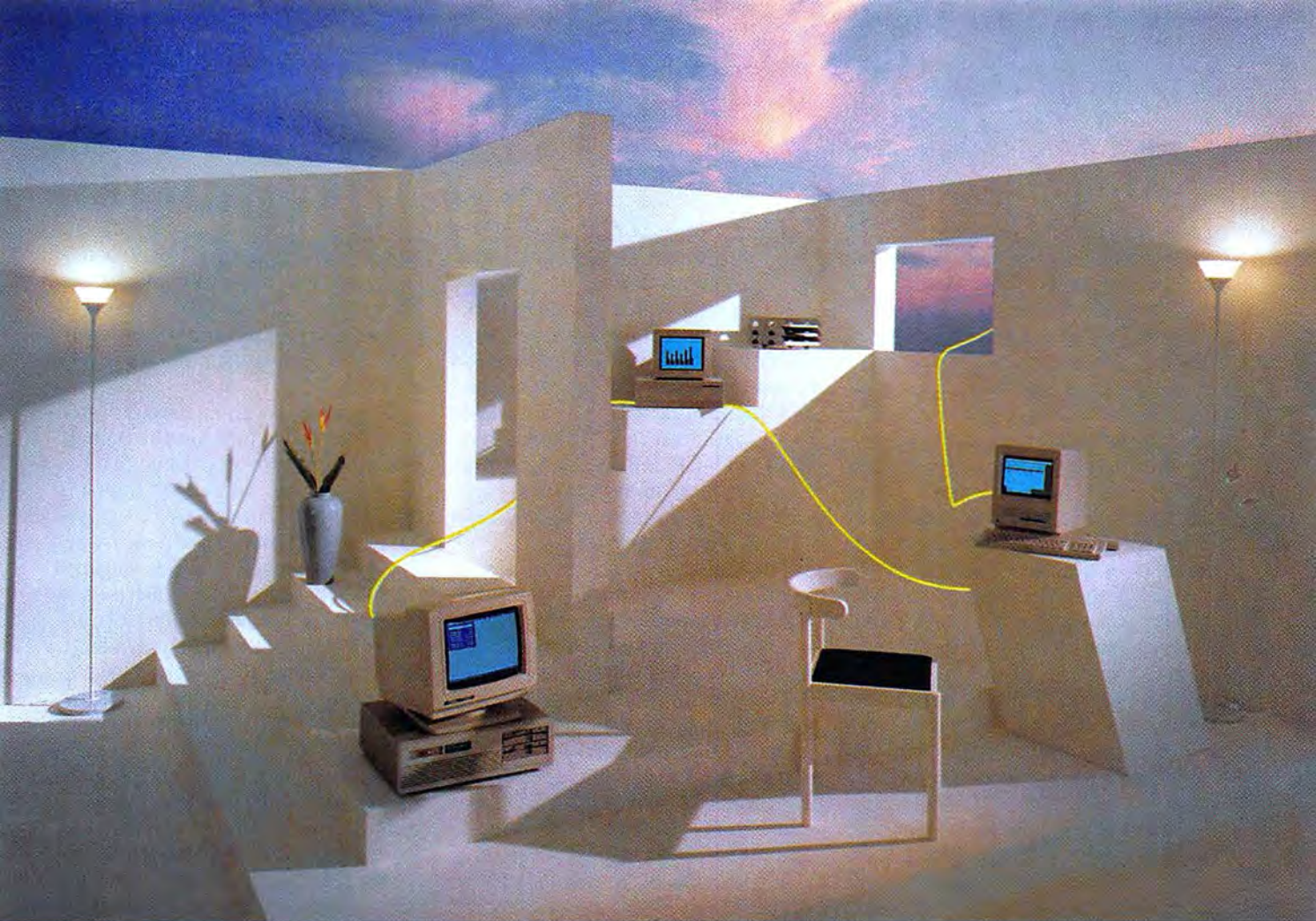
CloseView is a utility that makes it easier for visually impaired users to read or view the screen. It offers magnifications from 2 to 16 times, and also lets users invert their screen displays



The Map display is also part of the Control Panel. The rapidly flashing point is the Current Location. You can determine distance or time difference either by clicking on the map or by entering a city name. If the name is in the preset database, the city's location will flash on the map. You can add or delete cities at will.



If you select the CloseView icon in the scrolling list at the left side of the Control Panel, you get this display. This is where you can turn CloseView off (it's really the only way to hide the framing rectangle), decide on a white-on-black or a black-on-white (inverted) display, turn the magnification on and off, set the power of the magnification, and enable or disable key equivalents.



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(to white on black). It does not work in color. If you print or dump a magnified screen, you get the actual-size images, not the expanded images. That's OK because that's usually what you really want.

You control CloseView either by using Command keys or by selecting it in the Control Panel. One of its few drawbacks is that if you have installed it, it automatically turns on when you start the Mac. This means that its heavy and somewhat obtrusive framing rectangle is visible. And there's no Command-key equivalent to shut it off; you have to go to the Control Panel. This is a very minor flaw in a program that's going to help lots of folks whose eyesight isn't good. Still, I'd like the default to be off.

Apple paid a lot of attention to this program. The section of the *Utilities User's Guide* that documents it is printed in approximately 30-point type so that potential users will be able to read it. Even the reference in the table of contents is printed in large type.

CloseView was created for Apple by Berkeley System Design, creator of Stepping Out and inLarge (the program on which CloseView is based).

MacroMaker is Apple's long-awaited macro application. Using it you can record characters and commands and play them back with a keystroke or two. Programs such as Affinity's Tempo II and CE Software's QuicKeys have long been among the most popular Mac utilities, and similar MS-DOS utilities are also best-sellers.

The metaphor chosen is the cassette recorder. The MacroMaker window looks like a tape recorder, and a special tape icon appears in your menu bar when MacroMaker is installed.

The program works pretty much as the icon and window suggest. You "turn on" recording, perform some action, "turn off" recording, and assign a name and key equivalents. That's it. It sounds simple, and it is. But that's also a lot to go through simply to make, say, a DA callable by a Command key-stroke.

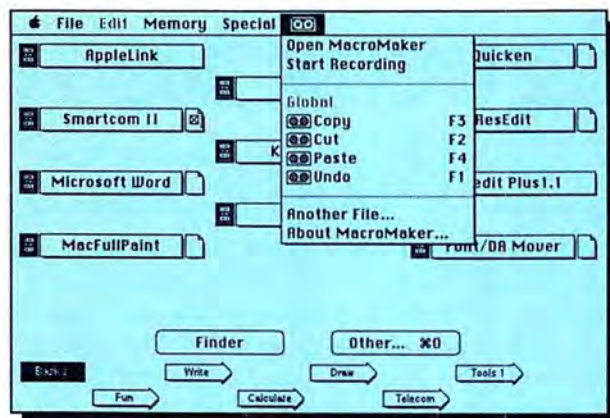
You can create as many macro sets as you want and switch freely among them. You also have the choice of creating application-specific macros or global macros that are always available. This part of the program is very strong.

The whole program is slightly too cute and not quite powerful enough. There are things you can't do that are fairly easy to do with either Tempo II or QuicKeys. For example, MacroMaker records only certain mouse actions, so it's unlikely that you could use it to handle dialog boxes or alerts. And the Specials and Date/Time features of QuicKeys are simply not available. It looks as though Apple tried to combine the best of Tempo and QuicKeys; it still has a way to go to beat either, however.

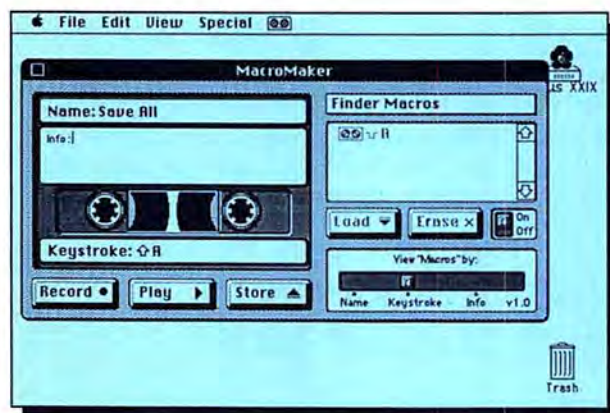
We had some problems with MacroMaker, particularly when trying to open new macro files. It consistently froze the Mac. Although MacroMaker has some potential, its main virtue right now is that it's free. It's neither anywhere near as powerful as Tempo II nor as versatile as QuicKeys. Because it is free, you should try it. Be sure you've saved your work before you give it a spin. If you like what it does, try Tempo II and QuicKeys. They do it better.

Responder is a tiny program that registers your user name on AppleTalk networks when you start up and prevents anyone else from using the same user name. While in test distribution, this program was known as Snitch. That pretty well describes it, and it had better because Responder appears to be totally undocumented (at least as far as users are concerned).

The System Software Update documentation is entirely new. Instead of a pair of pamphlets that mentioned everything that was obvious and little that wasn't, there's now a pair of books. The larger is the 274-page *Macintosh System Software User's Guide*. This book is obviously intended to replace much of the machine-specific documentation that Apple has distributed up until now. It covers Macintosh operation from first operation up through moderately advanced user operation.



Whenever MacroMaker is active, the tape icon appears to the right of the other menus in the menu bar. Pull it down to gain access to the MacroMaker window and any currently active macros. If you have global macros, they're listed under the application-specific macros. Macros are displayed with their key equivalents.



This is MacroMaker's main screen. You get to it by selecting the top item on the MacroMaker menu. After your macro has been recorded (you can use the controls here or those on the menu), you name it and assign it comments and key equivalents. The scrolling list at the upper right shows all the macros in the current list. You use the slider at the bottom right to sort that list.

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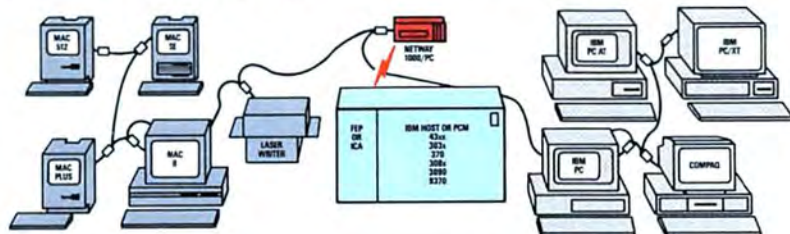
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The *System Software User's Guide* is well written and good on what it covers. What it doesn't cover are the myriad shortcuts, tricks, and tips that allow you to most fully utilize Mac. Indeed, some techniques and tips (such as clicking on the disk icon in dialog boxes to move up a level in the hierarchy) that were present in earlier Apple System documentation are not to be found here. What's worse, there is no mention that users can go beyond the operating techniques outlined, nor is any information provided on where to find such information. (And I know I'm sort of preaching to the converted here.)

The smaller *Macintosh Utilities User's Guide* is no lightweight at 171 pages. It's also more important because it explains how to use Map, CloseView, and MacroMaker. Map and MacroMaker, for all their external simplicity, are not particularly intuitive, and the manual recognizes this. For example, it devotes eight pages to the very important Font/DA Mover (and omits the tip mentioned later that can eliminate many of your Font/DA Mover problems) and gives ten pages to Map, which at this time is essentially a curiosity.

Both volumes have some typos (for example, referring to Utilities Disk 1 when the file is on Utilities Disk 2), but none are very serious. It's just that I expect none from Apple. There is, however, a chart in Appendix A that I strongly object to. It should not be there in the form it is. The chart is Figure A-1 on page 248 of the *System Software User's Guide*. It indicates

that although it's not the best choice, the horribly dangerous System 3.0 can still be used on Mac 512Ks, 512KEs, and Pluses. This System randomly destroys files and should never be used by anyone, anywhere. You have to wonder about the "stick my head in the sand" viewpoint Apple is displaying with this chart.

THEN THE OLD

System Software Update 5.0 brought MultiFinder, the modular Control Panel, and Installer. For a good overview of these files and the rest of System Software Update 5.0, see Robert Wiggins' article "All Systems Go" in the March '88 *MacUser*.

The original version of MultiFinder had problems working with many applications. The problems weren't always its fault, but all the same, they caused a lot of grief. Lots of programs were revised to be more MultiFinder friendly. Some were so far off the standard that they never made it to MultiFinder friendliness.

And MultiFinder, although it worked, wasn't so friendly itself. The new version, 6.0, is much improved. It handles memory problems more smoothly and is more pleasant to work with. All programs that work with version 1.0 work with version 6.0. MultiFinder is now able to reclaim unused system heap space and will let you double-click on a document icon to open a document that belongs to an application that is already open. Overall, the new MultiFinder will attract new users and make multitasking on the Mac a little more real.

MultiFinder, by its nature, operates best on a multimeg Mac. That hasn't changed, nor will it. The standard partition sizes for version 1.0 work fine in version 6.0. Desk accessories, however, are handled a bit more cleanly; it's harder to run out of memory while using them.

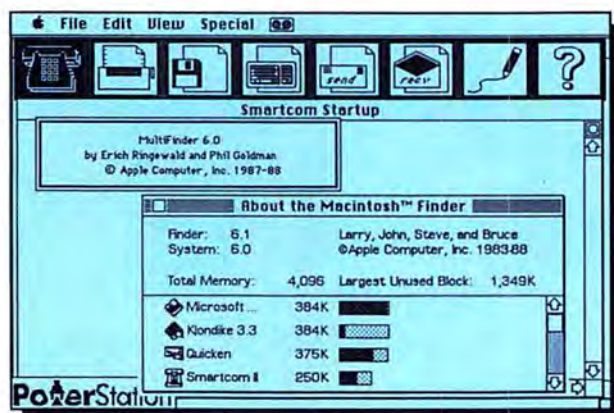
As noted earlier, the System and Finder files are much bigger than they used to be, which is a problem for people without hard-disk drives. To help them, Apple has created a set of special Installer Scripts that create absolute minimal Systems for each of the supported machines. These minimal Systems are stripped of all possible resources and assume that you will not be using a LaserWriter (some of the LaserWriter font resources are omitted).

As always, Apple recommends that you turn MultiFinder off (no, there's no easy way to do that yet) before running either HD Backup or Font/DA Mover.

Font/DA Mover is somewhat improved but still has problems more often than any other application you're likely to use regularly. Every version of Font/DA Mover has trouble when it has to repair internal problems and renumber resources (which it does whenever it installs anything) in the same pass. The fix is to double-move all fonts and DAs you want to install. Move them first into a new Font/DA file and then to the target file. The first step is Font/DA Mover's chance to fix whatever it thinks is wrong; the second move is when the necessary resource renumbering occurs.

The new version of HD SC Setup (2.0) adds real partitioning ability, which is absolutely necessary if you plan to run multiple operating systems such as the Mac OS and A/UX.

Much of the partitioning software available from third-party vendors does not create "real" partitions. That is, the "partitions" created are really just volumes in one large memory space. Real partitioning requires that the memory areas not be logically linked at any level. Although they reside on the same media, they should behave in all ways as if they were on separate physical disks.



MultiFinder version 6.0 is a much improved program. It uses memory far more efficiently and is much better behaved than is version 1.0, which it replaces.

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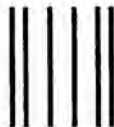
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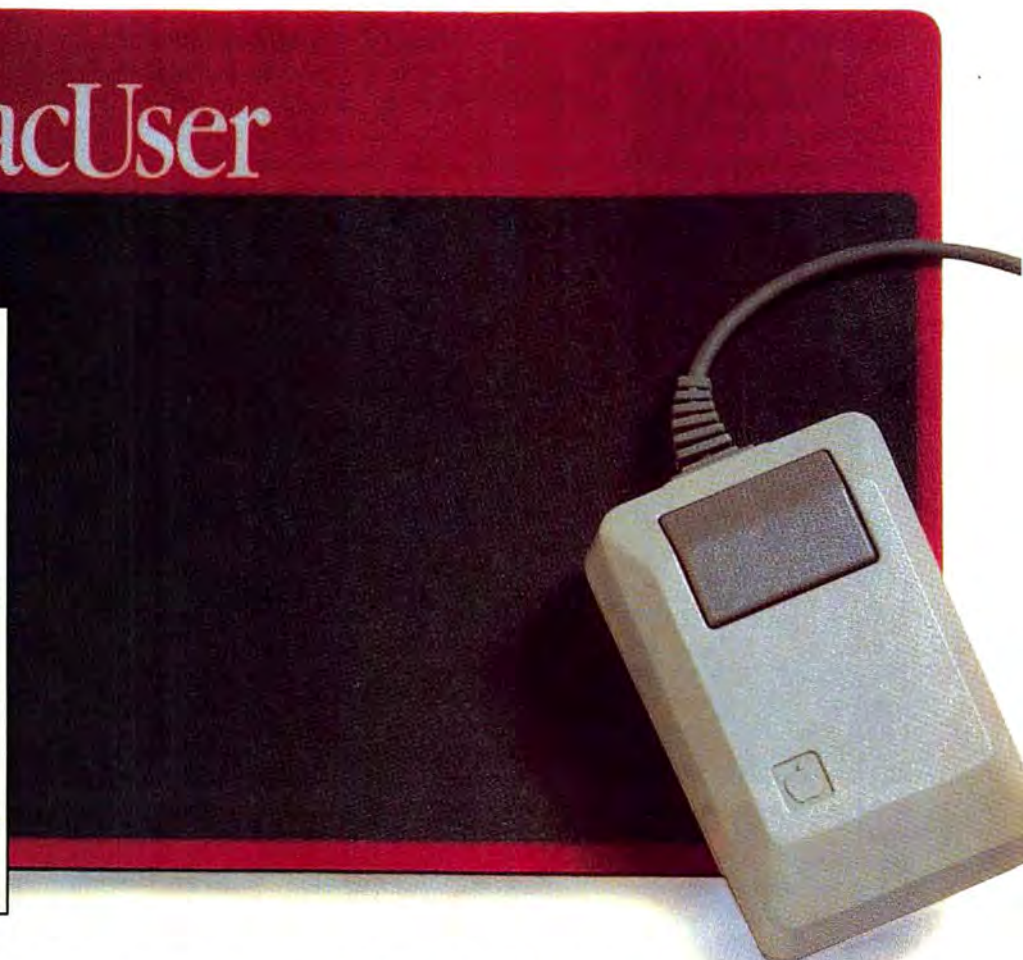
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The partitions created by HD SC Setup are real, and you can use one for the Apple Macintosh OS and one for A/UX (when it is completely set up). The partitioning portion of HD SC Setup is intuitive, elegant, and effective.

When you can get to it, that is. Unfortunately, the program works only with Apple hard-disk drives. It refused to recognize a PCPC hard disk (that uses the same Rodime mechanism used in the Apple 40SC).

Although we can understand why the program might balk at formatting another manufacturer's drive, this

program even denied that a SCSI device was attached. This is the sort of feature or bug that should not have been allowed to slip by.

NOW IT DOES, NOW IT DOESN'T

The release of System Software Update 6.0 caught many developers by surprise. Apple says this release was given to developers for testing with their products earlier than any previous updates; many developers report they never got the testing copies, however.

As a result, there are widespread compatibility problems. And they

don't involve merely games or small products. Lots of the big names got caught this release. Included on the list are FullWrite Professional, Excel, Microsoft Works, PixelPaint, inBox, 4th Dimension, and Radius' monitor control software.

FullWrite's problem would be cute, if it weren't so deadly. What happens is its documents turn into thesaurus files and can't be opened. Ashton-Tate has sent registered owners a fix and has further advised that you can avoid the problem by always keeping documents outside the folder in which the application is stored.

The Excel problem is more complicated. Microsoft has said that Excel users should get the new version 1.5 to ensure compatibility; however, that upgrade is not free to most owners. Microsoft has also said that any version of Excel prior to version 1.06 "will probably not work with 6.0."

There was also a problem with Works, but a patch appeared on bulletin boards almost immediately. If your copy of Works 1.1 isn't working, check your local BBS or user group for the patch.

Acus also promptly released a fixed version of 4th Dimension. That version is 1.0.6 and is free to registered owners. A new, System 6.0-compatible version of PixelPaint 1.1, is expected by the time you read this. Radius and Symantec (publishers of inBox) have also promised that patches will be out long before you read this.

There are certainly other programs that will have problems with System 6.0. In most cases, the problems will arise because the developers did not heed Apple's advice to "play by the rules" when developing their applications.

This release has a lot of bugs, however — mostly small but still bugs. Many users have reported higher than usual numbers of crashes and freeze-ups. It's not always possible to determine if a problem has been caused by an incompatibility or by a System software bug. Our testing, over the course of four weeks, didn't show any unusual problems that we could attribute to the System software, but we might have been very lucky.

Electronic Acquisition

Apple now licenses its System software for electronic distribution. All the national on-line services, along with many local bulletin-board systems (BBSs), have obtained these licenses. When the software is released by Apple, these are usually the first places where it's available.

But before you rush off to your modem, consider that Apple distributes this material on four 800K disks. If you want it all, there's about 2 ½ megabytes to download (2521K to be precise).

And downloading is rarely free, even if the time you spend doing it is. The national services charge hourly rates of between \$5 and \$15 per hour. And even if a BBS is merely a local call away, there are usually limits as to how long a session can be.

Let's look at some numbers. With all going well (clean phone line, not too many users competing for the host's time, and so on), you can download (with error correction — an absolute necessity with files this size) about 400K an hour at 1200 baud and 750K an hour at 2400 baud. If you go to a national on-line service, peak-period performance is often only half that. Those figures will tell how much time and money you should budget if you want to download the System software.

Some of the systems, such as CompuServe's MAUG, are combining and compressing the files to reduce the amount of time you need to spend. These packed files require that you have Stuffit to unpack them, but then everyone who downloads anything at all should have Stuffit. It's available on all services and BBSs and from all user groups.

Let's say you subscribe to CompuServe and you want to download the new System software. First you need to find it. It's in LIBRARY 8 of APPDEV. Get there from any ! prompt by typing GO APPDEV (Return). If necessary read the Help files. Then download the following files (with approximate sizes in bytes):

BOOT60.BIN	11,136
SYS.INF	8,710
DAFONT.SIT	193,822
LICENS.TXT	7,717
PTOOLS.SIT	202,142
STOOLS.SIT	119,838
SYSFLD.SIT	172,190
SYSTEM.SIT	298,270
USYS.TE.SIT	278,814
UTILS1.SIT	95,262
UTILS2.SIT	298,142

That's for the packed files. If you're curious, that's approximately 1,647K or just over 4 hours at 1200 baud. Normal CompuServe 1200-baud rates are \$12.75/hour. Figure it out.

If you wanted to get the individual files, you'd have to get more than 50 files, and it would take at least twice as long to download them all.

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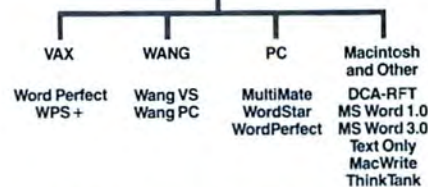
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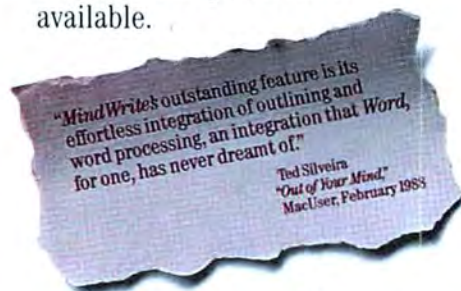


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System Tools 72K					
System Folder	—	Folder	Color	3.3	Control Panel cdev file
Backgrounder	1.1	System document (print spooler)	Easy Access	1.0	INIT file
Clipboard File	4.2	System file	Finder	6.0	Finder
Color	3.3	Control Panel cdev file	General	3.3	Control Panel cdev file
DA Handler	1.1	MultiFinder file	Key Layout	2.2	Keycaps DA file
Easy Access	1.0	INIT file	Keyboard	3.3	Control Panel cdev file
Finder	6.1	Finder	Monitors	3.3	Control Panel cdev file (Mac II only)
General	3.3	Control Panel cdev file	Mouse	3.3	Control Panel cdev file
Key Layout	2.2	Keycaps DA file	Scrapbook File	2.3	System file
Keyboard	3.3	Control Panel cdev file	Sound	3.3	Control Panel cdev file
Monitors	3.3	Control Panel cdev file (Mac II only)	Startup Device	3.3	Control Panel cdev file
Mouse	3.3	Control Panel cdev file	Apple HD SC Setup	2.0	Application
MultiFinder	6.0	MultiFinder	Disk First Aid	1.4	Application
Scrapbook File	2.3	System file	HD Backup	1.1	Application
Sound	3.3	Control Panel cdev file	Responder	1.0	AppleTalk file
Startup Device	3.3	Control Panel cdev file			
System	6.0	System	Utilities, Disk 2 708K		
TeachText	1.2	Application	Apple File Exchange Folder	—	Folder
Read Me	—	TeachText document	Apple File Exchange	1.1	Application
Setup Folder	—	Folder	DCA-RFT/MacWrite	—	Apple File Exchange document
Apple HD SC Setup	2.0	Application	Font/DA Mover Folder	—	Folder
Installer	2.6	Application	Desk Accessories	—	Font/DA Mover document
Installer Scripts	—	Folder	Fonts	—	Font/DA Mover document
Macintosh II Script	6.0	Installer document	Font/DA Mover	3.8	Application
Macintosh Plus Script	6.0	Installer document	MacroMaker Folder	—	Folder
Macintosh SE Script	6.0	Installer document	MacroMaker	1.0	INIT file
			MacroMaker Help	1.0	MacroMaker document
			Macros	—	MacroMaker document
Utilities, Disk 1 767K			CloseView	1.0	Control Panel cdev file
Installer	2.6	Application	Map	1.1	Control Panel cdev file
Special Installer Scripts	—	Folder			
Minimum Mac II Script	6.0	Installer document	Printing Tools 274K		
Minimum Mac Plus Script	6.0	Installer document	LaserWriter	5.2	Printer driver
Minimum Mac SE Script	6.0	Installer document	Laser Prep	5.2	LaserWriter prolog document
AppleShare Script	1.1	Installer document	ImageWriter	2.7	Printer driver
System Folder	—	Folder	AppleTalk ImageWriter	2.7	Printer Driver
Access Privileges	—	AppleShare DA	PrintMonitor	1.2	Application
AppleShare	1.1	INIT file	LaserWriter IISC	1.0	Printer driver
Clipboard File	4.2	System file			

DOCUMENTATION

Macintosh System Software User's Guide, Version 6.0

Tutorial: Learning Macintosh Basics
 Basic Macintosh Techniques
 Working With the Finder Desktop
 Finder Menu Commands
 Desk Accessories
 Keyboards
 3.5-Inch Disks
 Hard Disks
 Startup Disks
 MultiFinder
 A History of Macintosh System Software
 Troubleshooting

Macintosh Utilities User's Guide

Apple HD SC Setup
 HD Backup
 Disk First Aid
 Font/DA Mover
 Find File
 MacroMaker
 Apple File Exchange
 Apple File Exchange: Advanced Features
 Map
 Special Installation
 CloseView
 Moving Through the File System

PUT UP OR SHUT UP

We recommend that you approach this first release of System 6.0 with caution. If you don't need or want its new features, don't install it. In the recent past, Apple has issued fixed versions of System software fairly soon after the initial release. Waiting for that to happen in this case seems a good idea. After all, there's a small matter of compatibility with other applications.

Some of you do need this update. If you use MultiFinder regularly, get the update at once. MultiFinder version 6.0 is much more stable than MultiFinder version 1.0.

To use version 6.0, you'll also need to install the new System and Finder. Even more of the resources MultiFinder uses have migrated to the System file from the MultiFinder file.

Keep in mind that you can use the ancillary bits and pieces independently

of the System version you are running. Most do require that you be running System 4.1 at least, but that's it. The programs that fall into this category are CloseView, MacroMaker, Map, all the printer drivers, HD Backup, and Disk First Aid. If you're on a multiuser network, all users should update their printer drivers at the same time.

This is the System Software Update that probably shouldn't have been. Apple was under pressure on two fronts to get it out, however, and it did. On one hand, those two manuals were sitting there printed, and they kept referring to the the April '88 release. And Apple had made that silly promise to update the System software approximately every six months.

Apple should have waited and added patches to avoid the worst of the compatibility problems. And fixed the bugs. To let marketing and PR considerations determine the release date of System software is wrong. What matters is getting it right. We hope this was a one-time event, and we'll get the good stuff in System Software Update 7.0 — when it is ready. ☞

JAKE PADEN IS A FORMER RANCH HAND NOW TURNED MAC CONSULTANT. HE LIVES IN THE SILVERADO AREA AND SAYS THE MAC BEATS COWPUNCHING ANY DAY.

6.0 at the Deadline

System software is dynamic stuff. Although it's not supposed to, it changes day by day. Here's the latest on System Update 6.0.

Apple, acknowledging bugs in the Color Manager, Script Manager, and Sound Manager portions of System file 6.0 (that's one single file of the 50 or so in the package), has announced that a replacement will be available free. The replacement will be available by early August at the latest and possibly before then. It will be called version 6.0.1.

This release will be a bug fix and will not alleviate the compatibility problems. Apple really wants its developers to play by its programming rules. Many of the developers, however, believe that Apple's refusal to special-case the new System software to take into account the well-known quirks of some well-known programs is deliberate — a push in what Apple feels is the "right" direction.

As the new version will be out by the time you read this, be sure that you get that version number or a later one (remember, we said this stuff is dynamic). System file version 6.0.1 will be distributed along with a new LaserWriter driver (probably version 5.3, although this couldn't be confirmed at press time).

Rumors that System Software Update 6.0 was recalled were exactly that — rumors. No recall occurred, and Apple still recommends that all Plus, SE, and II owners switch to System 6.0, although we obviously don't.

Here's yet another fix to a popular package. If you have Bravo Technologies' MacCalc and a file editor such as Fedit or Symantec Tools, make a copy of your MacCalc program and use the file editor to change the string 42AD FFF0 to 4678 0B9E. That's it. The copy will then work properly under System Software Update 6.0.

Finally, we need to clarify Apple's policy toward you, their dealers, and this upgrade. Apple does not force its dealers to make copies for you. They are allowed to, and Apple suggests they do, but it's up to the individual dealer. Basic good-business practice would seem to indicate that every dealer should provide a service that costs so little. If my dealer refused to let me make a copy on my own disks, I'd look for another dealer. If the dealer does refuse to allow you to make copies (and for geographical or other reasons, you have no choice in the matter), he or she should provide a card that, if you can meet its stringent conditions, will get you the update.

The rub is in Apple's stipulations. First, to receive an upgrade card for your free copy of 6.0, you need to have purchased your Mac between May 13 and August 5. Your dealer must complete the card. Then you must send the completed card with the original copy of your sales receipt to a P.O. Box in Southern California. The card says "Allow up to 16 weeks for delivery." When I asked Apple about a 16-week delivery time on a product that is scheduled to be revised every 26 weeks, I was told that the 16 weeks was a worst case and most people would get their new software quickly.

Still, sending in the original sales receipt and making the dealer go through the paperwork seems, well, inane. The only reasons why these cards exist is because units are being sold that don't have the current software in the box. This can't be helped. But, the solution here is nearly worse than the disease. The new software should be as quick and easy to get as possible, not as hard. Oh well, maybe next time. It's not that far away.

MACUSER RATING

System Software Update 6.0 $\frac{1}{2}$

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	□ ■ ■ ■ ■
On-Screen Help	□ □ □ □ ■
Performance	□ □ ■ ■ ■
Support	□ □ □ □ □
Consumer Value	□ □ □ ■ ■

Comments: The latest release of Apple's System software. New features include CloseView, Map, and MacroMaker. MultiFinder is much improved. **Best Feature:** The new MultiFinder version 6.0. **Worst Features:** Incompatible with many programs; lots of small bugs (nothing known to be fatal). **List Price:** \$49, boxed with documentation. Available in many other forms, usually at lower cost (see article). Published by Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014; (408) 996-1010. Requires Macintosh Plus, SE, or II. Not copy-protected. MultiFinder and Mac II friendly.

THIS IS WAY BEYOND COMPUTERS.



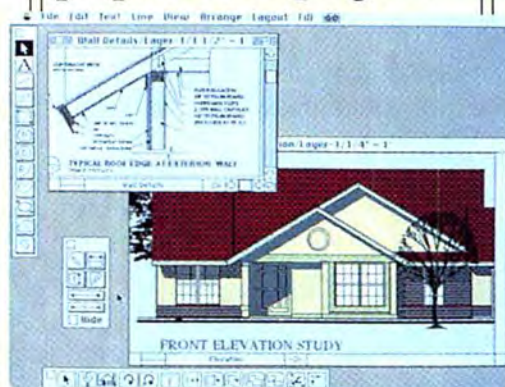
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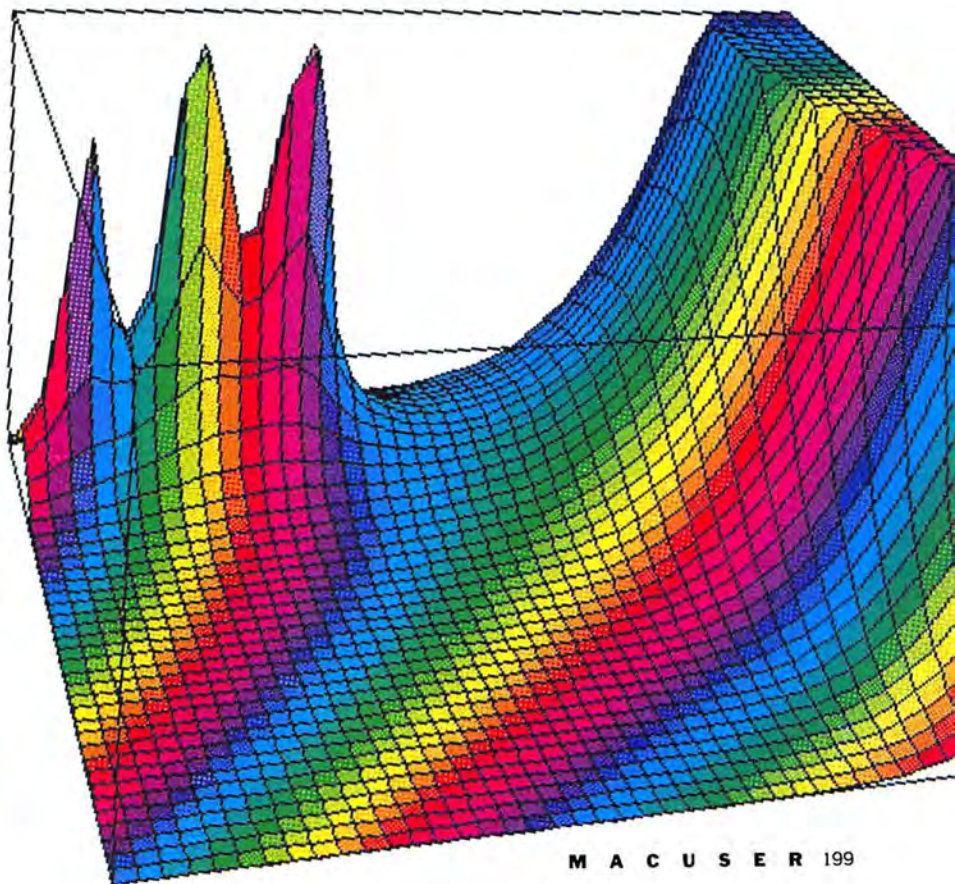
Enter Mathematica

Remember when you were in high school in that (expletive deleted) math class, and you couldn't understand the equation you had to solve? Wouldn't it have helped to be able to type the equation on your Mac and instantly see a picture of it — and a solution? What if you could check similar equations quickly to see how they differed? With Mathematica, an astoundingly powerful new mathematics program from Wolfram Research, such feats become mere child's play.

Mathematica opens up the entire world of mathematics to exploration by both the curious and the professional. What a spreadsheet can do with arithmetic, Mathematica can do with all of mathematics. Combining the knowledge of a mathematics Ph.D. with the speed of a computer, Mathematica is a breakthrough product in the world of small computers. It's powerful enough to provide professional physicists, mathematicians, or engineers with important new tools, yet simple enough to help students with their algebra.

Mathematica performs numeric calculations to any desired degree of precision. It does symbolic mathematics, manipulating algebraic formulae with ease. It produces dazzling two-

*In which a few thousand years
of mathematical knowledge
suddenly arrive on the desktop,
and we journey through a strange
and wonderful new world*



BY JAMES FINN

and three-dimensional graphics — in color on a Mac II — and can even animate them. A substantial part of known mathematics is already built in, and additional functions can be added through Mathematica's expressive new programming language.

Here's a quick example of the power of Mathematica. In most programs, the value of the mathematical constant Pi is stored accurate to, say, 6 or 16 or some number of decimal places, as in 3.14159. But applications may require greater accuracy. In Mathematica, the value can be calculated to any accuracy you like. You need Pi to 2,000 digits? Just enter `N[Pi, 2000]` and out it comes (this command generated the band running across the pages of this feature.)

Mathematica is the brainchild of Stephen Wolfram, a physics prodigy who published his first paper at the age of 16 and who received his Ph.D. from the California Institute of Technology when he was only 20. Wolfram went on to win a MacArthur ("genius prize") Fellowship and is currently Professor of Physics, Mathematics, and Computer Science at the University of Illinois.

Wolfram wants his program to become a new standard, and he's recruiting many computer manufacturers to distribute versions of Mathematica for their machines. So far the list of the converted includes Sun Microsystems, Silicon Graphics, Ardent Computer Corporation, and Stellar Computer. IBM will offer it on the IBM RT PC, and Steven Jobs will bundle it with every NeXT computer. Apple did not take on the distribution of the Macintosh version, so Wolfram Research is marketing it on its own.

Okay, I know you Macintosh aficionados are asking, "Why is *MacUser* talking about those *other* computers?" Good question. Since Mathematica is intended to run on many machines, it was designed from the outset to be used over a network. To this end, Mathematica is divided into two parts, the kernel and the front end. The kernel does all the mathematics, and will be more or less identical in every implementation. The front end is the user interface, and will be different in every

Mathematica
is the brainchild of
Stephen Wolfram, a
physics prodigy who
published his first paper at
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received his Ph.D. from
the California Institute of
Technology when he was
only 20.

version. The Macintosh front end supports multiple windows, menus, and, for the most part, all the friendly interface features that Mac users have come to know, love, crave, and demand. You work with notebooks, which are documents that contain text, graphics, and Mathematica input and output. If you use Mathematica on one of those other machines, expect life to be less fun.

The kernel and front end need not be on the same machine. If you need the number-crunching power that only a supercomputer can provide, you can run the front end on your friendly Mac, dial up the heavy-duty hardware, and run the kernel on the remote machine. You still have the friendly Mac interface, the only difference being that the calculations will be done on the remote computer and will therefore be faster.

The networking software is already built into the Macintosh version (although I was unable to test it, since at the time of this writing the Macintosh is the only machine on which Mathematica is available, and its kernel cannot be used remotely). On the UNIX operating system, Mathematica will

be able to communicate with other programs through pipes.

WHAT YOU NEED

If you saw the musical play or film *Little Shop of Horrors*, you may remember an endearing plant with a lusty appetite for blood. Mathematica is an endearing program with a similar appetite for memory. You will need a minimum of 2 megabytes to run the kernel, but don't expect to be able to do much without at least 2.5 megs. For certain calculations, such as complex 3-D graphics, 4 to 5 megabytes are necessary. I've been running Mathematica primarily in a 3-megabyte partition under MultiFinder, and that works well for all but the most complex graphics. Be forewarned that if Mathematica runs out of memory during a calculation, its typical response is to crash.

However, you can run the front end alone on a 1-megabyte Mac. So, for example, a college student with a Mac Plus could run the front end while dialing up a kernel on a campus mainframe. If you only want to look at a notebook without performing any calculations, the kernel isn't needed.

You will need a hard disk. Mathematica, its supporting files, and its sample notebooks occupy 3 megabytes of disk space. Installation is simple; just copy all the files into a folder on your disk.

The excellent manual that comes with Mathematica describes only how to use the front end. Hereafter I will refer to it as *The Manual*. The "kernel manual," *Mathematica, A System for Doing Mathematics by Computer*, is a 749-page tome written by Wolfram and published by Addison-Wesley, and will be known hereafter as *The Book*. It is for the most part very well written and is nicely organized so that the easiest material is at the front, with more esoteric topics at the back.

There are two versions of Mathematica. The standard version runs on a Macintosh Plus, SE, or II. The Macintosh II version runs only on a II and takes advantage of the 68020 and 68881 coprocessor. I worked almost exclusively with the Macintosh II version.

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Enter Mathematica



JUST ON THE SURFACE

Working with Mathematica is straightforward. Basically, you type in a Mathematica expression, then press Enter or Shift-Return. Mathematica evaluates the expression and prints the result. Your input expressions are labeled `In[1]`, `In[2]`, etc., and the output is labeled `Out[1]`, `Out[2]`, etc. You can use these labels to reference earlier results, but all typical Mac operations are also supported, so you can scroll, Select, Copy, Cut, and Paste.

Integers (numbers with no decimal point) are considered to be exact, while real numbers are approximate. If you type `2 / 3`, Mathematica will keep an exact result and display the rational number $\frac{2}{3}$, but `2.0 / 3.0` will produce `0.666667`. Mathematica also supports complex numbers as a basic data type and can work directly with symbolic names like `x`.

Mathematica supports standard notation for arithmetic, with `+`, `-`, `*`, `/`, and `^` representing addition, subtraction, multiplication, division, and exponentiation, respectively. You can also perform multiplication by writing two quantities next to each other: `x y` means the same as `x*y`. Parentheses can be used to control the order of evaluation. Mathematica's built-in functions use the format `function_name[argument1, argument2, ...]`. The name of the function is followed by any arguments, separated by commas and enclosed in square brackets. The arguments themselves can be arbitrary expressions.

A TEST DRIVE

Without further ado, let's look at Mathematica in action. Figure 1 gives a quick demo of the power of Mathematica.

The first few expressions in the figure show how easy it is to do exact calculations with very large numbers and approximate calculations with arbitrary precision. `In[5]` through

`In[10]` demonstrate Mathematica's symbolic capabilities on some simple algebra problems. Mathematica prints algebraic expressions in a readable two-dimensional form. If you need fancier printing, Mathematica will optionally create TeX typesetting output (it can also produce Fortran or C programming language output).

`In[9]` introduces several important features of Mathematica. It is our first encounter with lists. `{a, b, c}` denotes a list containing `a`, `b`, and `c`. In the example, the expression `eqns = {5x + 80y - z == 100, 10x + y + z == 20, x - y - 3z == 8}` creates a list containing three equations and assigns the list as the value of the symbol `eqns`. The double equal sign in the equations means equality; the single equal sign following `eqns` is an assignment (this should look familiar to C programmers, who will recognize most of their favorite operators in Mathematica). Initially, a name such as `eqns` is just a symbol, but you can assign a value to any symbol. I want a name for the list of equations so I can refer to it later without retyping the list.

If you have several expressions that you want evaluated together, you can type them together, separated by semicolons. This is also shown in Figure 1. After assigning the list of equations to `eqns`, I put in a semicolon and then solve them by typing `Solve[eqns, {x, y, z}]`. Note that `Solve` here gets two arguments, both lists. The first is the list of equations to solve, the second is the collection of variables I want to solve for.

Yes, Mathematica knows calculus. `In[11]` through `In[13]` show symbolic and numeric integration and differentiation.

WORTH 2,000 WORDS

Superb two- and three-dimensional graphics are among Mathematica's most valuable achievements. `In[14]` and `In[15]` (of Figure 1) barely hint at what is possible. Mathematica generates all of its graphics in resolution-independent PostScript, while the front end contains a PostScript interpreter to produce the screen display. The PostScript can be edited and re-

displayed. You can copy graphics to the Clipboard or as a file in PICT, bitmap, or Encapsulated PostScript Format (EPSF). Mathematica can also create parametric, contour, and density plots.

The test drive (see Figure 1) concludes with a demonstration of how Mathematica treats arrays as lists. `In[16]` generates a list of numbers. `In[17]` subtracts 1 from the list; Mathematica automatically performs the subtraction on each element in the list. `In[18]` and `In[19]` show the flexible but unaesthetic syntax of array indexing. `In[20]` creates a two-dimensional array, which is represented as a list of lists. Arrays of any number of dimensions are handled similarly. The last few expressions demonstrate simple built-in matrix operations.

NOTEWORTHY NOTEBOOKS

Mathematica documents are called notebooks. They contain text, graphics, and Mathematica expressions. Mathematica treats a notebook like a big outline. Information is entered in *cells*, which you can group hierarchically. A group of cells can be displayed or closed easily, so you can explore the contents of a notebook while keeping an uncluttered screen display. If you look again at Figure 1, you will notice *cell brackets* on the right side. They indicate cells and groups of cells. Mathematica normally groups each output cell with its corresponding input cell. Looking at the brackets shows the cell organization. Cells or groups are selected by clicking on the appropriate bracket. You can specify that a group of cells is an *evaluation group* in which all the cells must always be evaluated together. You can create *initialization cells* that are automatically evaluated when a notebook is opened. Cells can be locked, preventing accidental alteration.

Figure 2 shows an animation notebook that comes with Mathematica. It contains functions to generate sequences of related graphics that can then be animated by the front end. When you first open the notebook, there are two closed groups, Examples and Implementation. When a cell

```
In[1]:=
(* Taking Mathematica out for a spin,
starting with some simple arithmetic.
The labels In[1], Out[1], In[2], Out[2],
etc. are created automatically by
Mathematica to identify your input and
its output. Any text written between
"(*" and "*)" is a comment and is
ignored by Mathematica. *)
1 + 1
```

```
Out[1]=
2
```

```
In[2]:=
(* "^" is exponentiation. Note the
exact result. *)
670(6^70)
```

```
Out[2]=
1979986957746946433921334132059605105719790\
646444603473920
```

```
In[3]:=
(* Try a square root, "/"N means we
want an approximate numeric result. *)
Sqrt[123] //N
```

```
Out[3]=
11.0905
```

```
In[4]:=
(* How about 50 digit accuracy? *)
N[Sqrt[123], 50]
```

```
Out[4]=
11.0905365064094171620516001026099329184633\
76742454
```

```
In[5]:=
(* Try some algebra, factoring a
polynomial. *)
Factor[x^20 - 1]
```

```
Out[5]=
          2
(-1 + x) (1 + x) (1 + x)

          2    3    4
(1 - x + x - x + x)

          2    3    4
(1 + x + x + x + x)

          2    4    6    8
(1 - x + x - x + x)
```

```
In[6]:=
(* Check the result by multiplying it
out. "%" means the previous result,
Out[5] in this case. *)
Expand[%]
```

```
Out[6]=
          20
-1 + x
```

```
In[7]:=
(* Solve a quadratic equation. "=="
means equality. *)
Solve[2x^2 + 9x == -4, x]
```

```
Out[7]=
          1
{{x -> -4}, {x -> -(-)}}
          2
```

```
In[8]:=
(* How about a cubic polynomial? Note
the complex solutions. *)
Solve[x^3 - 10x == 100, x] //N
```

```
Out[8]=
{{x -> 5.35487}, {x -> -2.67743 + 3.39204 I
}, {x -> -2.67743 - 3.39204 I}}
```

```
(* Try a system of linear equations in
x, y, z. Name the equations "eqns". *)
eqns = { 5x + 80y - z == 100, 10x + y +
z == 20, x - y - 3z == 8}; Solve[eqns,
{x, y, z}]
```

```
Out[9]=
          1756          900          1920
{{x -> ----, y -> ----, z -> -(-)}}
          827          827          827
```

```
(* The solution was given as a list of
substitution rules for x, y, and z.
Check the solution by performing the
substitutions. "/" means "make the
following substitutions". *)
eqns /. %
```

```
Out[10]=
{{True, True, True}}
```

```
In[11]:=
(* Can we do calculus? Integrate x
Sin[x] with respect to x. *)
Integrate[x Sin[x], x]
```

```
Out[11]=
-(x Cos[x]) + Sin[x]
```

```
In[12]:=
(* Check by differentiating. *)
D[%, x]
```

```
Out[12]=
x Sin[x]
```

Figure 1: Test driving Mathematica. Here we stay in low gear, but in this vehicle low gear will take you very far very quickly.

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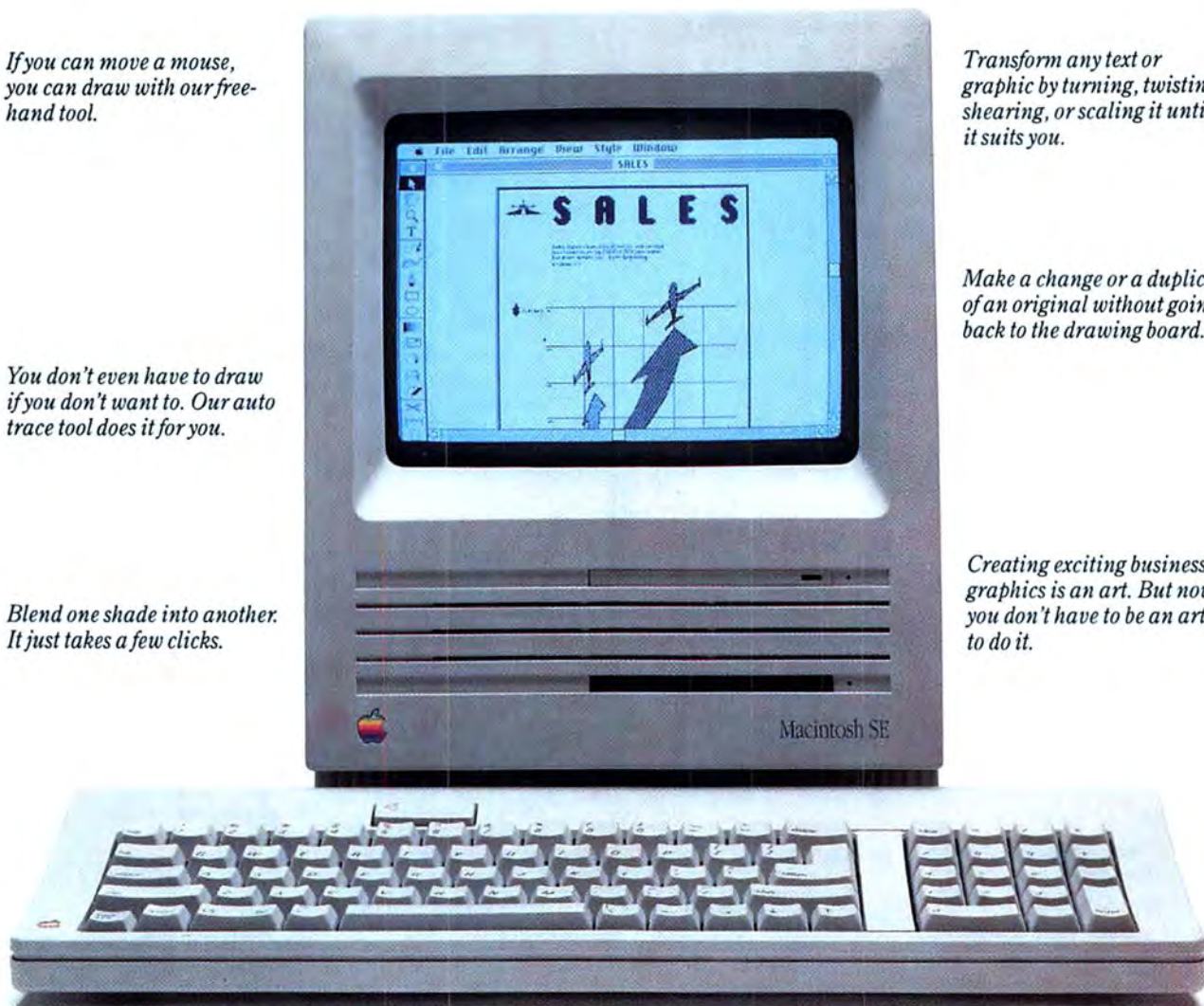
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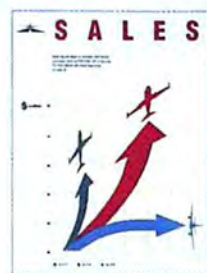
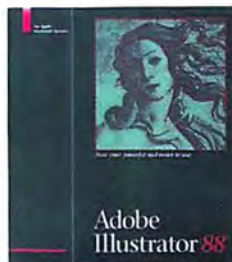
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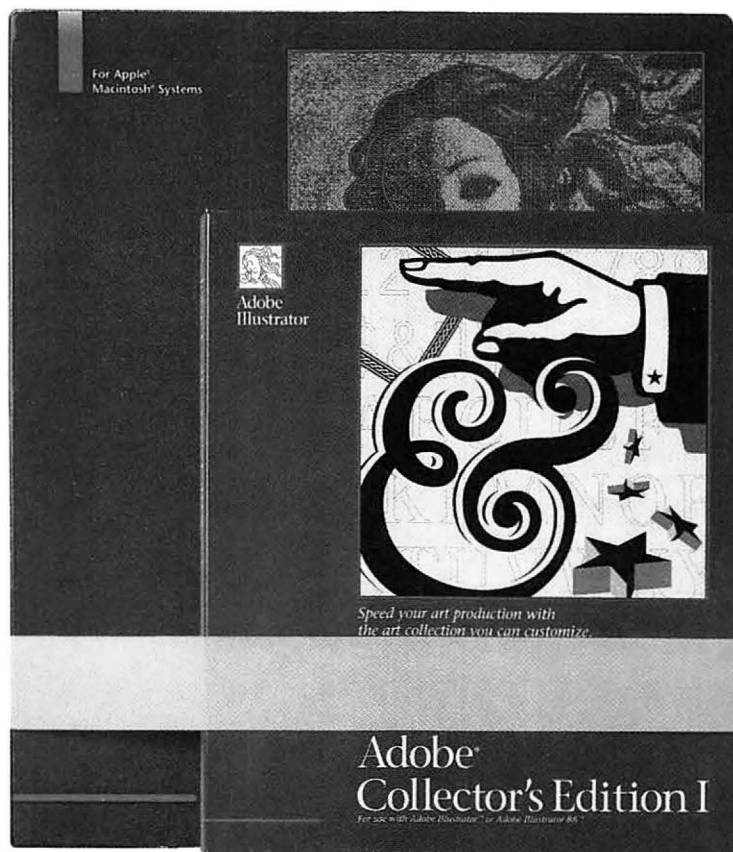
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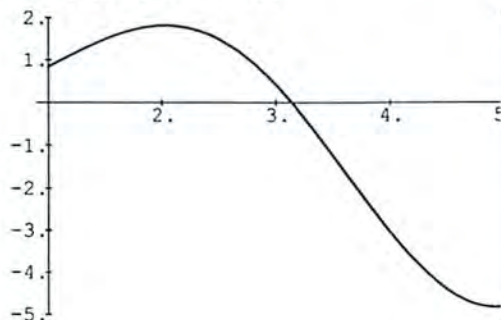
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Enter Mathematica

```
In[13]:=
(* How about a numeric integral? The
same function over the range  $1 \leq x \leq 5$ .
*)
NIntegrate[x Sin[x], {x, 1, 5}]
```

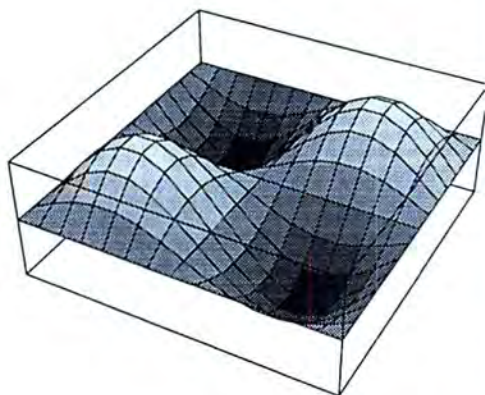
```
Out[13]=
-2.6784
```

```
In[14]:=
(* What does this function look like? *)
Plot[x Sin[x], {x, 1, 5}]
```



```
Out[14]=
-Graphics-
```

```
In[15]:=
(* Let's look at a surface, a function
of 2 variables. *)
Plot3D[Sin[x]Sin[y], {x, 0, 2Pi}, {y, 0,
2Pi}]
```



```
Out[15]=
-SurfaceGraphics-
```

```
In[16]:=
(* Mathematica can work with vectors and
matrices, which are represented as lists
and lists of lists, respectively. Here
is a list of perfect squares. Table
generates a list of the values  $x^2$ , with
x ranging from 1 to 10. *)
tbl = Table[x^2, {x, 1, 10}]
```

```
Out[16]=
{1, 4, 9, 16, 25, 36, 49, 64, 81, 100}
```

Figure 1 continued

```
In[17]:=
(* Arithmetic operations are applied to
each element in a list. *)
tbl - 1
```

```
Out[17]=
{0, 3, 8, 15, 24, 35, 48, 63, 80, 99}
```

```
In[18]:=
(* Select the third number on the list.
Double brackets are used for indexing,
winning the ugly syntax award. *)
tbl[[3]]
```

```
Out[18]=
9
```

```
In[19]:=
(* Indexing is flexible. This selects
the first, third, and fourth elements.
*)
tbl[[{1, 3, 4}]]
```

```
Out[19]=
{1, 9, 16}
```

```
In[20]:=
(* Create a matrix. *)
powers = Table[x^y, {x, 1, 4}, {y, 1, 4}]
```

```
Out[20]=
{{1, 1, 1, 1}, {2, 4, 8, 16},
{3, 9, 27, 81}, {4, 16, 64, 256}}
```

```
In[21]:=
(* Display it prettily. *)
TableForm[powers]
```

```
Out[21]//TableForm=
1      1      1      1
2      4      8      16
3      9      27     81
4      16     64     256
```

```
In[22]:=
(* Invert it. *)
Inverse[powers]
```

```
Out[22]=
4      1      13     19     7      11
{{4, -3, -, -(-)}, {-(-)}, --, -(-), --},
3      4      3      4      3      24

3      7      1      1      1      1
{-, -2, -, -(-)}, {-(-)}, -, -(-), --}
2      6      4      6      4      24
```

```
In[23]:=
(* Check the result. "." is used for
multiplying vectors, matrices, or
tensors. *)
powers . %
```

```
Out[23]=
{{1, 0, 0, 0}, {0, 1, 0, 0}, {0, 0, 1, 0},
{0, 0, 0, 1}}
```

group is closed you can see only the first cell of the group. A rectangular box at the bottom of the bracket indicates a closed group. The group bracket also has its "hinge" at an angle to indicate the same thing. Double-clicking on a closed group bracket opens the group, and double-clicking on an open group bracket closes it.

Opening the Examples group yields Figure 3. This reveals a survey of the animation functions, followed by a series of examples, each in a closed group. As you can see, text can be formatted, with full control over font, font size, style, alignment, and color. There is even a Styles menu with a large set of predefined but customizable text style sheets.

Opening the MoviePlot group gives Figure 4. You get the idea. Can you say "lots of money to be made in the educational market?" Can you say "almost one million calculus students in the U.S.A.?" I knew you could. Addison-Wesley has already announced that a calculus course based on Mathematica is being developed at the University of Illinois, Wolfram's home turf.

HELP MAX

Mathematica has one of the most comprehensive systems of on-line help that I have ever seen. Just in the Apple menu there are four distinct help commands (see Figure 5). Choose About Mathematica... and then click on Help to read a brief description of the program and how to get more help. Whenever Mathematica cannot carry out your commands, it beeps at you. Choose Why the Beep?... to bring up a more detailed description of the problem. (Unfortunately, this is often just the message, "Mathematica could not understand the expression you are trying to evaluate. It left the insertion bar at the place where there was something wrong.") Select any part of a notebook and then choose Explain Selection... to learn more about what you selected. If the selection is a function name, you'll learn about that function.

One of the nicest help features is command completion (see Figure 6). Names of Mathematica's built-in

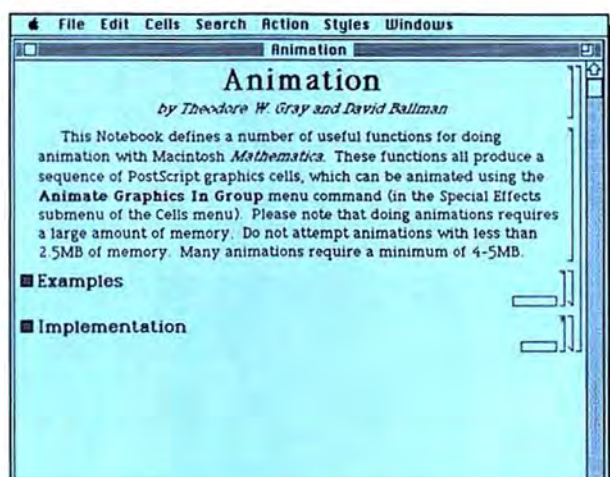


Figure 2: A Mathematica notebook, which is much like an outline. Information is contained in cells. Brackets on the right show the hierarchical organization of cells into groups. A box at the bottom of a bracket indicates a closed group; opening it by double-clicking on the bracket will show more information.

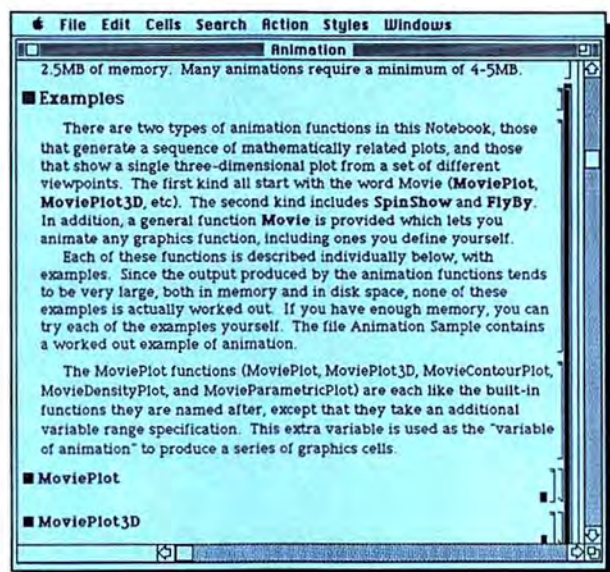


Figure 3: The view after opening the Examples group. It contains text and additional closed cell groups.

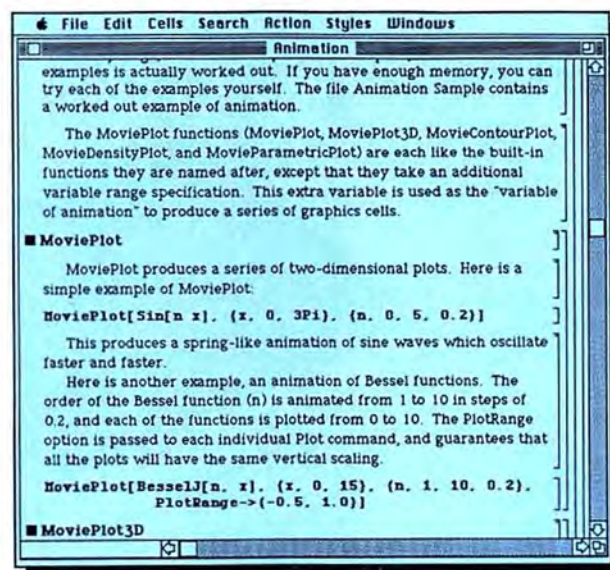


Figure 4: Here we've opened the MoviePlot group of cells. If a cell contains a Mathematica expression, you can select it and have it evaluated.

Enter Mathematica

functions, like `Integrate`, are typically capitalized and consist of complete words. This makes them easy to read and remember but tedious to type. If you type part of a name and then choose Complete Selection (or press Command-K), Mathematica will fill in the rest of the name if what you have already typed is enough to identify it uniquely. If more than one name can complete what you've typed, Mathematica will display a small window listing all the possible completions. You can continue typing, or scroll through the window and click on the correct selection to have Mathematica complete it for you.

You can press Command-? anytime to get help about menus, dialog boxes, or windows. Most dialog boxes have a Help button. The help system is itself a notebook through which you can browse to learn more about Mathematica.

If this isn't enough help, don't despair. You can also get help directly from the kernel. Type `?Name` to get information about the function `Name`. Type `??Name` to get more detailed information.

It is quite an accomplishment for a program of this complexity to have such good help that you rarely need to open *The Book* or *The Manual*.

SHE COMES IN COLORS

Mathematica produces beautiful color or gray-scale graphics and gives you very fine control over them. I'll use the surface generated by the function $\text{Sin}[x]\text{Sin}[y]$ (used in the test drive in Figure 1) to demonstrate simple color features. `Plot3D` and many other Mathematica functions let you customize their behavior by specifying options. Options are given by adding arguments of the form `OptionName -> OptionValue`. Normally, `Plot3D` does not draw in color, but adding the option `Lighting->True` will produce a color plot (see Figure 7). The colors come from three invisible light sources, one each of red, green, and blue, placed at 45-degree angles to each other on the right side of the plot.

You don't fancy those colors? The light sources, like just about everything else in Mathematica, can be cus-

tomized. You can give a list of light sources, specifying the coordinates and color of each. Figure 8 shows the same plot drawn with a red light above the front left and a blue light above the right rear.

You can also color a surface by giving a function instead of light sources.

In Figure 9, a shading function increases the amount of red as x increases and the amount of blue as y increases. The same techniques that control color can be used to control gray scales.

You can customize more about a plot than its color. Some of the other



Figure 5: An extensive help system. The first four items in the Apple menu provide different kinds of help. *Why the Beep?*... explains why Mathematica beeped at you instead of doing what you wanted. *Explain Selection*... gives information about whatever you've selected. *Complete Selection* fills in the rest of a function name that you've partially typed.

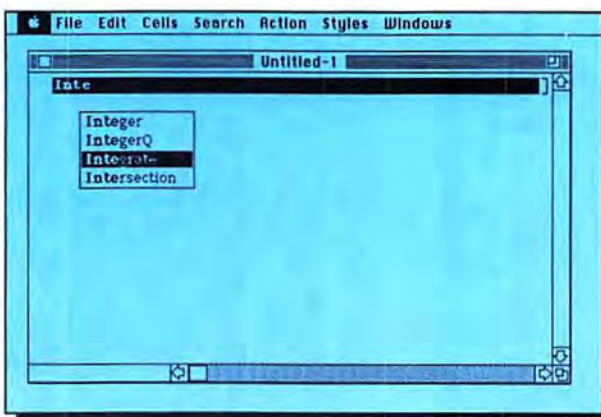


Figure 6: Command completion in action. We typed "Inte" and then chose *Complete Selection*. Mathematica shows a list of the four possible functions that begin with our text. If we click on *Integrate*, Mathematica will finish typing it for us.

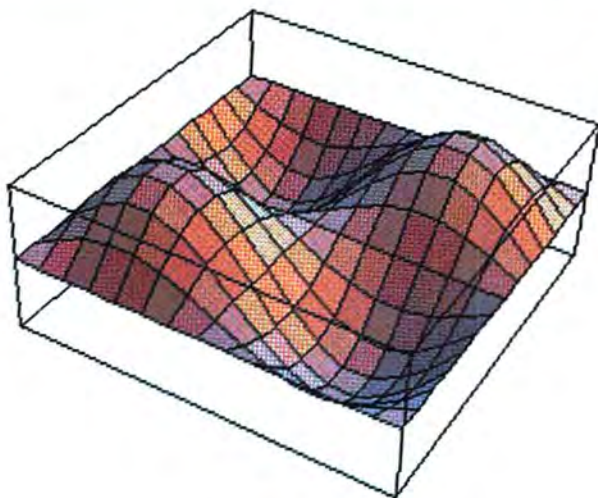
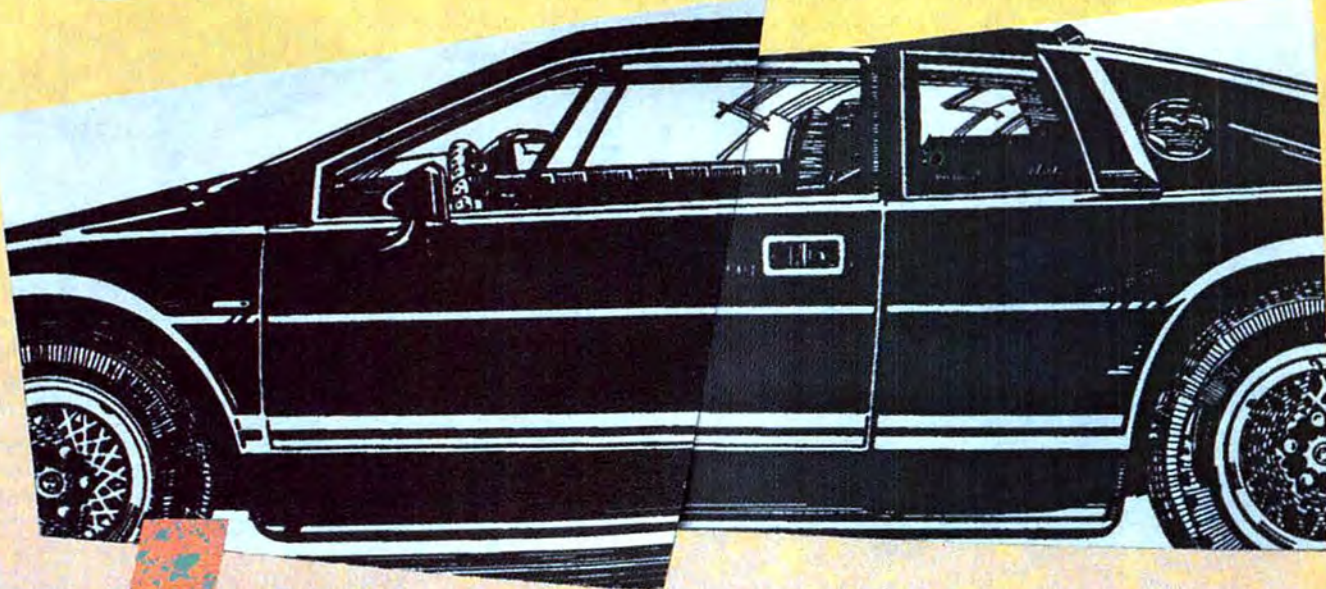


Figure 7: Color can be introduced into plots by adding the option `Lighting->True`. This was produced by the expression `Plot3D[Sin[x] Sin[y], {x, 0, 2Pi}, {y, 0, 2Pi}, Lighting -> True]`



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options control how many function points are sampled to produce the plot, whether the graph has a title or labels on the axes, the shape of the box that bounds the graph, whether the mesh

lines are drawn on the surface, and the viewpoint. Figure 10 shows the same graph as Figure 9, but it is drawn from a viewpoint nearer to the lower-right corner.

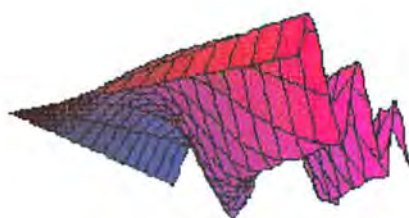


Figure 8: You can provide your own light sources if you like. This uses one red and one blue light, at opposite corners.

```
Plot3D[Sin[x] Sin[y], {x, 0, 2Pi}, {y, 0, 2Pi}, Lighting -> True, Light Sources -> {{{-1, -1, 1}, RGBColor[1,0,0]}, {{1, 1, 1}, RGBColor[0,0,1]}}
```

BELOW THE SURFACE

Mathematica has hundreds of built-in functions, all of which are documented in The Book. But much of the real power and elegance of Mathematica is revealed only when you begin to define your own functions. Let's start with a simple function called *addone*, that just adds one to its argument. The definition is `addone[x_] := x + 1`.

The underscore character “`_`” is a Mathematica *pattern* that matches any expression. `x_` names the pattern `x` so you can refer to it in the function definition. This definition tells Mathematica that whenever it sees *addone*[*Expression*], it should replace it with *Expression* + 1.

That was easy, so we'll try another. A pile of balls is held in a square frame. The top layer is a single ball. It sits on a square of four balls. These in turn sit on a square of nine balls. The question is, if the pile has *n* layers, how many balls does it contain? Call this function *balls*[*n*]. Pretty obviously, *balls*[1] = 1. Suppose that *n* is greater than one. Then the bottom layer has *n*² balls. Sitting upon it is a pile of balls *n* - 1 layers deep, so that contains *balls*[*n* - 1] balls. Putting these together, we find that *balls*[*n*] = (*n*²) + *balls*[*n* - 1]. How difficult is it to translate this insight into a Mathematica function? Judge for yourself. Here is the definition:

```
balls[1] = 1;
balls[n_] := n^2 + balls[n-1]
```

When you enter, say, *balls*[2], the 2 matches the pattern `n_`, so *balls*[2] is replaced by 2² + *balls*[1]. But in *balls*[1], the 1 matches both 1 and the pattern `n_`, so how does Mathematica decide which rule to apply? The answer is that a rule for a specific case is always used before a more general rule, so Mathematica chooses the rule *balls*[1] = 1. If

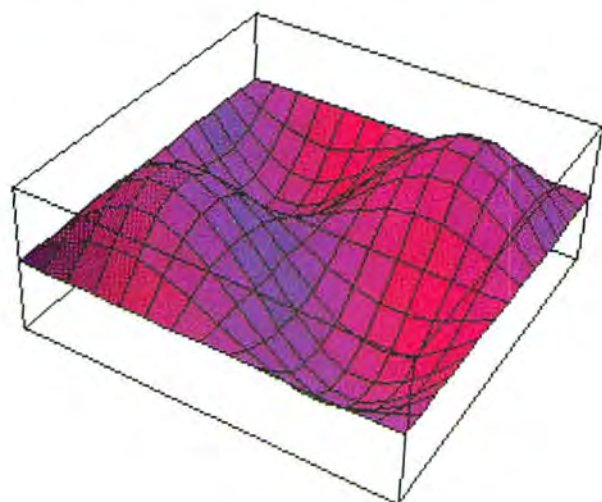


Figure 9: The same surface, this time colored by a function that increases red from left to right and blue from front to rear.

```
Plot3D[(Sin[x] Sin[y], RGBColor[x/(2Pi), 0, y/(2Pi)]), {x, 0, 2Pi}, {y, 0, 2Pi}]
```

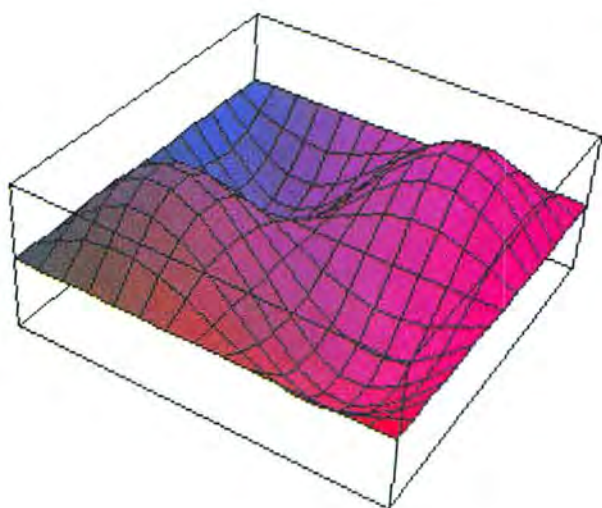
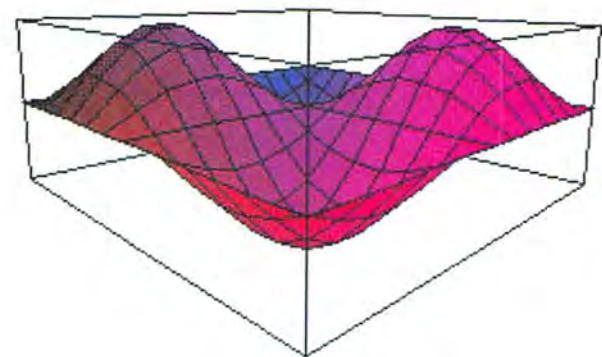


Figure 10: The same plot as Figure 9, seen from a viewpoint that reminds me of certain roller coasters I've known.

```
Plot3D[(Sin[x] Sin[y], RGBColor[x/(2Pi), 0, y/(2Pi)]), {x, 0, 2Pi}, {y, 0, 2Pi}, ViewPoint -> {1, -1, 3}]
```



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we could trace through the calculation of `balls[2]`, it would look like this:

```
balls[2]
2^2 + balls[2-1]
4 + balls[2-1]
4 + balls[1]
4 + 1
5
```

Of course, we might also have noticed that `balls[n]` is just a sum of squares from 1 to n and used Mathematica's built-in `Sum` function to define `balls` directly as

```
balls[n_] := Sum[i^2, {i, 1, n}]
```

Mathematica's pattern-matching capabilities are quite sophisticated. You can create patterns to match expressions of a particular form, expressions that satisfy some condition, or sequences of expressions. For example, `n_?Positive` is a pattern that matches positive numbers. The definition

```
f[x_+y_] := f[x] f[y]
```

will only match an argument that is in the form of a sum, such as `f[2i+j]`. The rule will transform this to `f[2i] f[j]`.

UNWRAPPING PACKAGES

A notebook that contains function definitions (and perhaps some explanatory text) is called a *package*. You can use packages supplied by third parties (Mathematica comes with quite a few already), or create your own.

PARDON THE EXPRESSION

All Mathematica expressions have the same underlying structure. The expression `h[a,b,c]` has *head* `h` and *elements* `a`, `b`, and `c`. Each of `h`, `a`, `b`, and `c` can themselves be expressions. In fact, when you write `x+y`, Mathematica represents it internally as `Plus[x,y]`. Similarly, `{x,y,z}` is just a shorthand for `List[x,y,z]`.

You can also write "normal" procedural programs in Mathematica. Several built-in functions implement block structure and standard control structures. For example, `Block[{x,y}, expression]` uses local variables `x` and `y` in the evaluation of `expression`, and `While[test, expression]` repeatedly evaluates `expression` until `test` does not

For Hackers Only

This is an example of a slightly more substantial program written in Mathematica. If you are a programmer, it will show you the flavor of Mathematica code. The program consists of a single function `prime[n]`, which tests whether its argument n is a prime number (a prime number is a number that has no divisors except for itself and 1).

One way to test for primality is to try all possible divisors. This method is prohibitively slow. Another approach is to take a theorem that is true for primes and test whether it holds for n . If not, n can't be prime. If so, you can guess that n is probably prime. The following test is due to M. Rabin. Write $n-1$ as $(2^k)e$, where e is odd. k and e can be found easily. k is the number of times you can divide $n-1$ by 2 until you get an odd number; e is that odd number. It is a theorem that if n is prime and x is any number between 2 and $n-2$, then either (a) $x^{n-1} \equiv 1 \pmod{n}$, or (b) there is some $j < k$ such that $x^{n-1} \not\equiv 1 \pmod{n}$. $x \equiv y \pmod{n}$ just means that $x-y$ is divisible by n . Rabin showed that if n is not prime, at least $3/4$ of the values x between 2 and $n-2$ will fail this test. If x is chosen at random and it fails the test, then n is definitely not prime. If x passes the test, we guess that n is prime, but there is a probability of error of at most $1/4$. Repeated tests will reduce the error probability to any desired level. Note that Mathematica already has a built-in function `PrimeQ` to test for primality.

```
(* Test whether n is prime. Return True if so, False
if not. The answer False is always correct, but the
answer True is wrong with probability at most 1/4.
Repeated tests reduce the probability of error. *)
```

```
prime[n_Integer?Positive] :=
Block[
(* Local variables and initializations *)
{e=n-1, nminus=n-1, p, k=0, count=0, xran},

(* An even number is prime only if it is 2 *)
If[EvenQ[n], Return[n == 2]];
(* Choose a random number between 2 and n-2 *)
xran = Random[Integer, {2,n-2}];
(* Write n-1 in the form (2^k)e, with e odd *)
While[EvenQ[e],
e = Quotient[e,2];
k++
];
p = PowerMod[xran, e, n]; (* This is (xran^e) mod n *)
If[p == 1, Return[True]]; (* xran^e is 1 *)
If[k == 0, Return[False]]; (* xran^(n-1) != 1 *)
While[True,
If [p == nminus, Return[True]]; (* Theorem satisfied *)
If[++count == k, Return[False]]; (* No power was n-1 *)
p = PowerMod[xran, 2*n, n]; (* Try next higher power *)
];
] (* End of Block *)
```

evaluate to *True*. The language contains a rich set of looping and conditional structures.

STILL A FEW BUGS

Mathematica is one of the more complex pieces of software ever written. It is also in its first release. One might expect, then, to find a bug or few munching around. I started working with version 1.0. It was quite stable (when given enough memory). Most bugs I found were in the front end. Wolfram Research provided excellent

technical support, answering any and all questions and taking bug reports seriously. A few weeks later they shipped version 1.03, which, besides adding animation, fixed all the bugs I had reported up to that time. Still, I found some problems with the newest version.

A few of the sample notebooks have glitches. For example, the Median function in the Statistics.m notebook doesn't work, and the animation example provided for the MoviePlot3D function fails to read in some color def-

An oil painting of a man in a green shirt and light trousers sitting on a table in an art studio. He is holding a paintbrush and looking at a blank canvas on an easel. The studio is filled with art supplies, including a computer monitor, paint jars, and brushes. A large window in the background shows a view of trees. The scene is bathed in warm, golden light.

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Enter Mathematica

initions it needs to produce its plots. Information provided by the Precision and Accuracy functions when working at machine precision is essentially garbage, although this would not be a bug if it were documented. Programmers should note that a Return statement

won't work inside a Do loop.

PERSPECTIVUM MATHEMATICA

Where does Mathematica fit in the spectrum of mathematical computing? Earlier programs that do symbolic mathematics include Macsyma, Re-

duce, Maple, and Wolfram's own previous effort, SMP. As an example, Macsyma, sold by Symbolics, is somewhat similar to Mathematica. It has a larger collection of built-in functions, and, being older, presumably has fewer bugs.

On the other hand, Macsyma needs 4 to 8 megabytes of memory. Mathematica's graphics are much better, the Macintosh interface and excellent documentation make it easy to use, and the rule-based programming language gives Mathematica a decided advantage in programmability. Whether you view it as evolutionary or revolutionary, Mathematica is an impressive achievement whose impact may be far-reaching indeed. ☐

JAMES FINN IS MACUSER'S TECHNICAL EDITOR. HE HOLDS A PH.D. IN COMPUTER SCIENCE, BUT THE FOLKS AT MACUSER WERE VERY SWEET AND LET HIM JOIN THEM ANYWAY. THIS WAS BEFORE THEY LEARNED THAT THE ONLY WAY TO GET HIM TO DO ANY WORK IS TO PRY HIM AWAY FROM GRATEFUL DEAD CONCERTS.

MACUSER RATING

Mathematica

Follows Mac Interface	■	■	■	■	■	□
Printed Documentation	■	■	■	■	■	■
On Screen Help	■	■	■	■	■	■
Performance	■	■	■	■	■	■
Support	■	■	■	■	■	□
Consumer Value	■	■	■	■	■	□

Comments: Powerful tool for doing all kinds of mathematics on a Macintosh.

Best Features: Arbitrary-precision numeric calculations, symbolic computation, PostScript graphics, programmability.

Worst Features: Large memory requirements, particularly for graphics. Proclivity to crash when it doesn't get enough. **List Price:** \$495 for the standard version, \$795 for the Macintosh II version. Published by Wolfram Research Inc., P.O. Box 6059, Champaign, IL 61821; (217) 398-0700. Mac Plus or better required, hard disk required. 2 megabytes of memory required to run the kernel, 2.5 or more recommended. Apple System 4.2 or later required, won't run under System 6.0. Version 1.03 reviewed. MultiFinder friendly. Not copy-protected. Documentation sold separately: *Mathematica: A System for Doing Mathematics by Computer*, by Stephan Wolfram; Addison-Wesley, \$29.95 softcover, \$44.25 hardcover.



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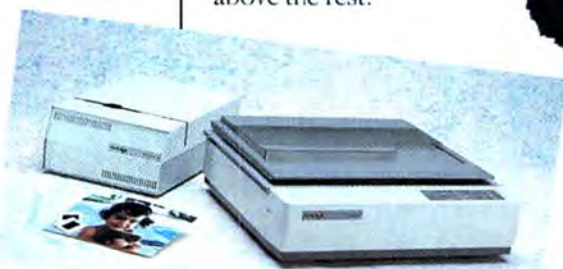
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DTP

This month's DTP section provides a walk through ImageStudio. Between the Lines has news from the world of DTP, and as always, there are tips to make the publishing life a little easier.

Elsewhere in this issue, the focus is on word processing. Quick Clicks reviews MacDraw II, and MiniFinders has capsule reviews of other DTP-related products.

If you have tips and tricks of your own to share, send them to DTP, c/o *MacUser*, 950 Tower Lane, 18th floor, Foster City, CA 94404.

EDITED BY AILEEN ABERNATHY

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DTP Tips

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Between the Lines

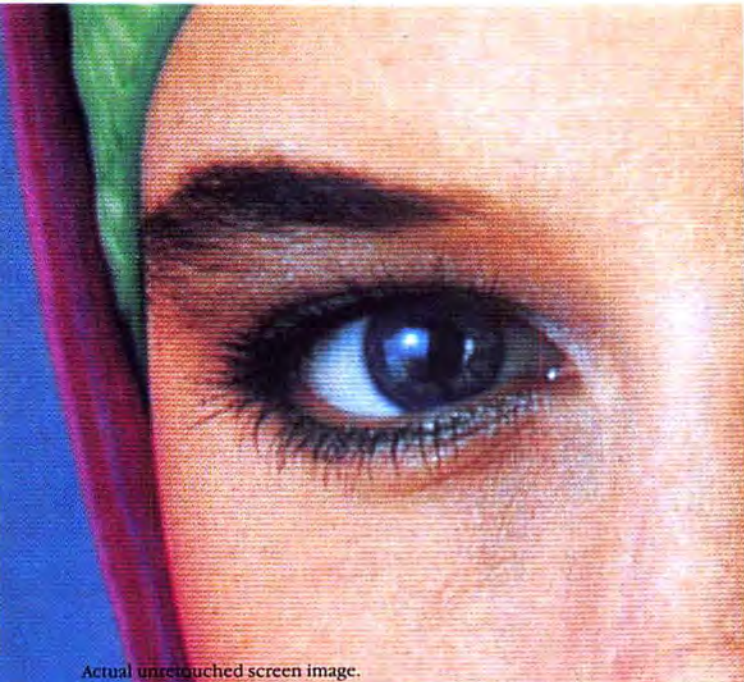
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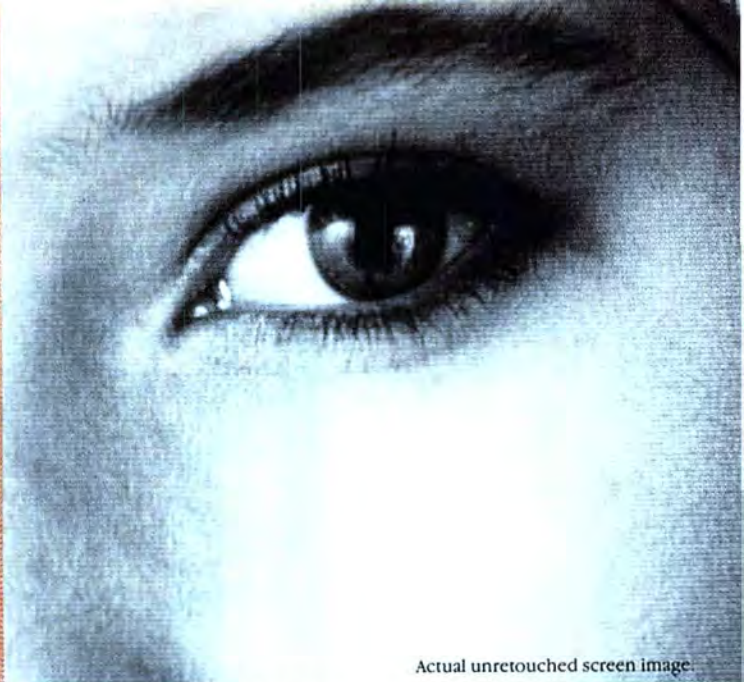
A Retouching Story

Page 237





Actual unretouched screen image.



Actual unretouched screen image.

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TeX

A Capital Idea

The typesetting language TeX is a recent and immensely powerful addition to the Mac's DTP arsenal. Unfortunately, it has a bewildering, arcane terminology that dates back to its days on mainframe computers. For example, leading is called *baselineskip* — logical, of course, but not what you'd expect. And you'll look in vain for any mention of drop caps in Donald Knuth's *TeXbook* or in the documentation for TeXtures or MacTeX. But drop caps are possible.

In TeXtures, just type the following lines at the head of your file (or save it as part of a format file) to create a macro for doing drop caps. It's not particularly sophisticated or even efficient in terms of TeX programming, and unless you fiddle with its details, you're restricted to a certain size and style of drop cap. But this macro should provide you with a basis on which to build, if you're so inclined.

```
\outer\def\drop#1{
  \font\cap=Times at 46pt
  \setbox0=\hbox spread 2pt
  {\cap#1\hfil}
  \def\dc{\cap#1}
  \def\dc{\noindent
  \lower34.75pt\hbox
  {\hskip-\hangindent\dc}}
  \dc\vskip-34.75pt\noindent
  \hangindent
  =\wd0\hangafter=$n3}

```

Once this is in, you create a drop cap by typing the name of the macro `\drop`, a space, the letter to be used as a drop cap, another space, and finally the rest of the word.

— Gregory Wasson

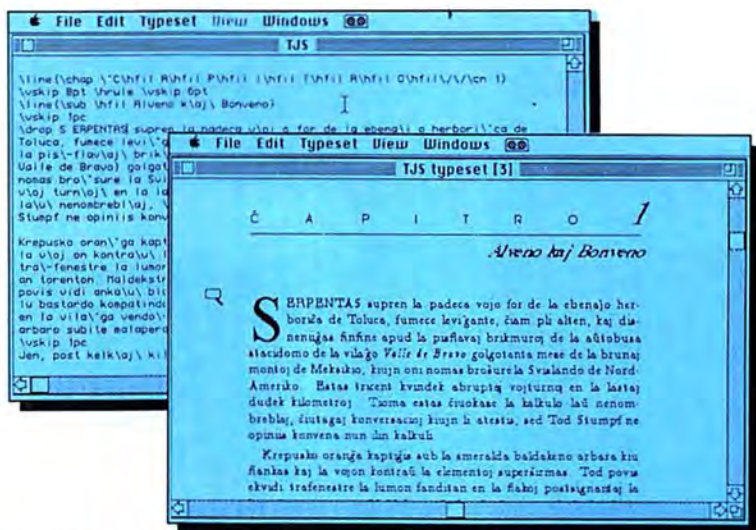
WORD 3.0X

Search and Destroy

If you've ever worked with a telecommunicated file in Microsoft Word, you may have encountered a frustrating series of "boxes" at the beginning of each line. No clever combination of cut and paste or search and replace will automatically strip these unknown characters, so they usually must be removed one line at a time.

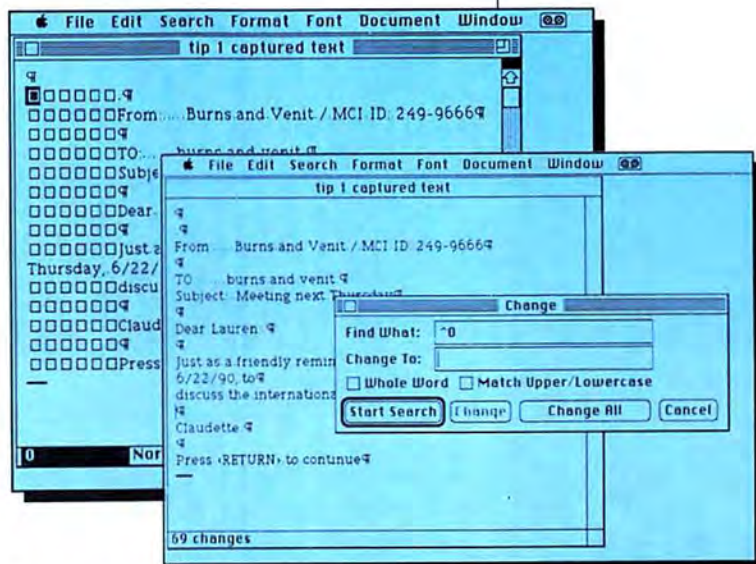
But don't give up hope. You *can* ask Word for the ASCII number of any character in your file. This information can then be used in a global search and replace to get rid of the unwanted characters. Just follow these simple steps:

1. Select one of the unwanted characters.
2. Press Command-Option-Q. The ASCII code for that character will appear in the



These TeXtures screens show how you can produce a drop cap in TeX. The first part of line 5 (`\drop S` ERPENTAS) invokes the drop-cap macro.

TeX



To discover the ASCII number for an unknown character, select it and press Command-Option-Q.

lower-left corner (where the page number normally appears).

3. Choose Change... from the Search menu. Enter a caret followed by the ASCII number.

4. Leave the Change To field blank, and choose Change All.

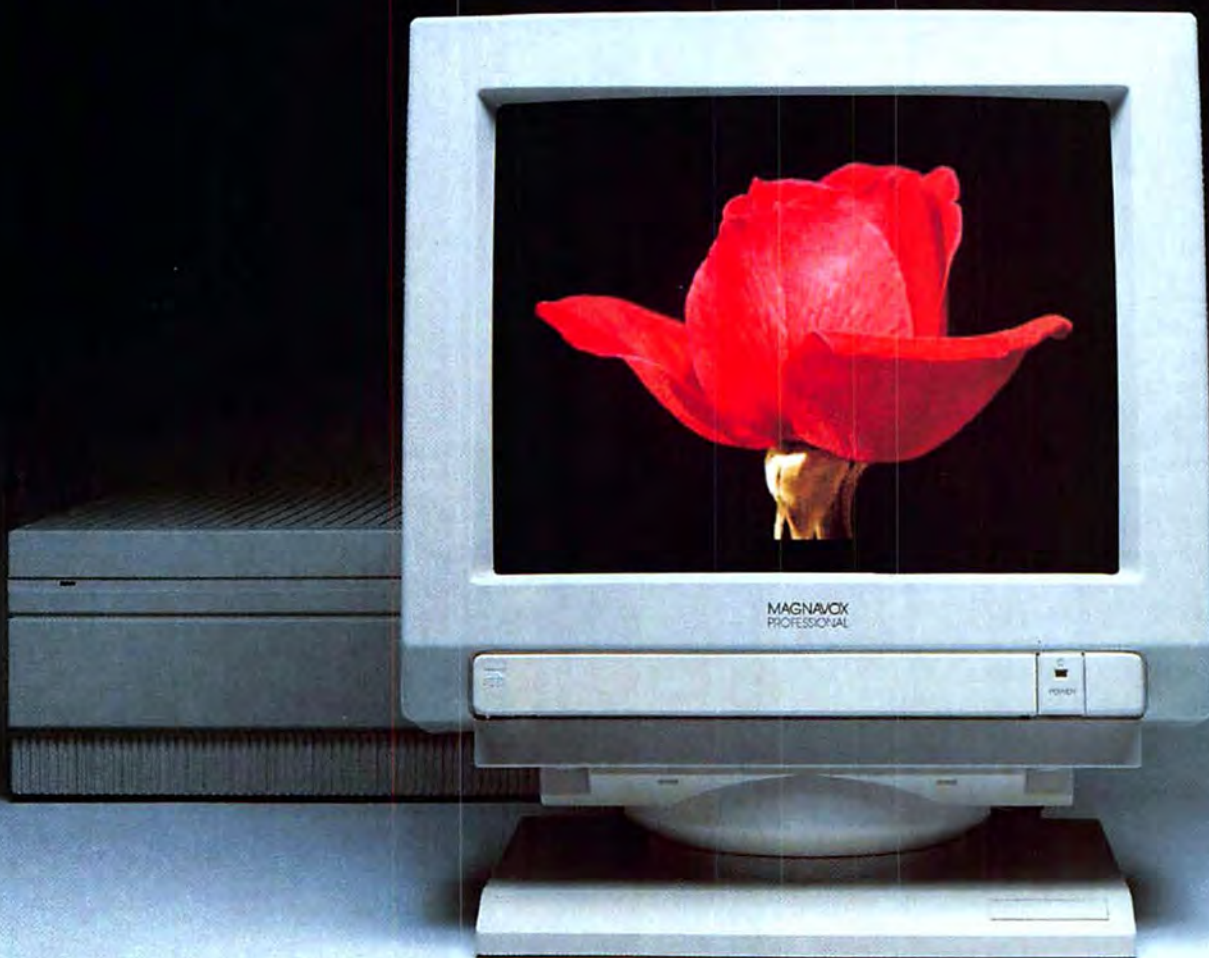
When Word finishes its search-and-destroy mission, your file will be free of the unwanted characters.

— Diane Burns and S. Venit

Word

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You take on a hefty DTP project. You start making page dummies and conceptualizing graphics, but you're not skilled enough to design graphics. What do you do? Maybe hire a graphic artist? And have you considered the other aspects involved in this project? Will you be able to make the deadlines? How about budgeting? Gosh, do you even know who your target audience is? Come to think of it, you never were a details person.

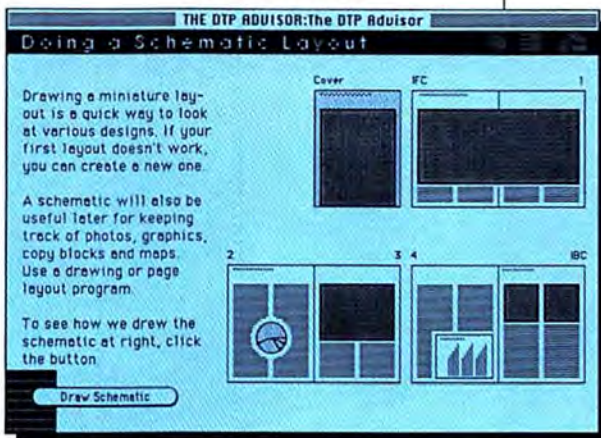
No worries, mate. Now you have The DTP Advisor from Broderbund. In addition to teaching you the finer points of graphic design, DTP Advisor acts as a backseat driver for your endeavors. Created by a graphic designer with more than 15 years of experience in the field, the program (composed of HyperCard stacks) gives you pointers for improving the quality of your projects by covering six processes in detail: planning, project management, design, typography, art production, and printing. And you might learn a bit about HyperCard while you're at it — no prior knowledge is required to use the program.

The DTP Advisor comes with a detailed instruction manual (including "Legal Mumbo Jumbo") and will sell for \$79.95. For more information, contact Broderbund at 17 Paul Drive, San Rafael, CA 94903-2101; (415) 492-3200.

— Kristi Coale

Auto Trace can also draw over a scanned image such as a business form. Once the form is on-screen, you can click on a line and instantly create a new line of roughly equal width that snaps to a grid. As a result, it takes only minutes, instead of hours, to create a computerized image of a paper form.

Other DeskPaint tools include an air brush, charcoal, cropping, duplicating, distorting, transparent paint, inverse paint, halftoning, editable patterns (190), scaling from 1 to 3,999 percent, and free-rotating bit maps in 0.2-degree increments. There's

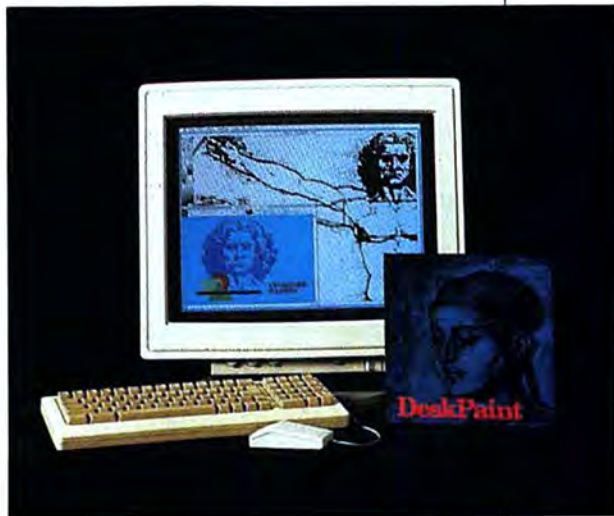


Broderbund's DTP Advisor is a HyperCard stack that coaches you in the nuances of design, from typography to layout. It also has a management system for project planning and execution.

Paint In Style

Finding the right tool is half of the job. Now you can have two "right tools" always at hand as DAs, allowing you to stay in your favorite DTP program while creating or editing an image. DeskPaint 2.0 and DeskDraw 1.0 provide many painting and drawing tools, including some normally found only in pricier programs.

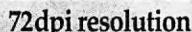
For example, DeskPaint's Auto Trace can turn bit maps into object-oriented polygons that can be edited by programs like DeskDraw or MacDraw. Print these new files and you have high-resolution lines instead of jaggies. You can use Auto Trace to convert MacPaint clip art into object-oriented clip art, although the task may be time-consuming because each potential polygon must be individually clicked on.



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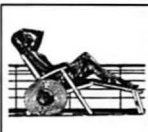
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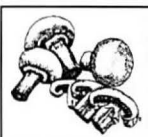
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The price for both DAs and the file-conversion utility is \$129.95. Owners of DeskPaint 1.0 can upgrade for \$35. Color versions of both DAs should be ready for release as you read this. Contact Zedcor at 4500 East Speedway, Suite 22, Tucson, AZ 85712-5305; (602) 881-8101.

— Gil Davis

Equation-ally Speaking

Allan Bonadio Associates has released a major upgrade to Expressionist, a superb, well-designed, and comfortable desk accessory that makes short work of typesetting equations. The first version of Expressionist was wonderful; the second is nirvana. Author Bonadio listened to user suggestions and added some surprises of his own.

The most notable improvement in version 2.0 is its increased compatibility with other Macintosh applications. Like its predecessor, Expressionist 2.0 is both a DA and stand-alone application that lets you point and click your way through any mathematical equation. In the original program, the result was treated like a graphic and could be pasted into virtually any document. Version 2.0 contains a user-editable table that enables you to export equations as text. "Preferences" files allow you to save equations in text formats that can be understood by Microsoft Word or TeX. Unfortunately, the transfer is one-way; equations can't be brought back into Expressionist by this method. A new "AutoBaseline Adjust" feature works with WriteNow 2.0 to center exported equations along with running text.

Other enhancements in version 2.0 include a thin space, four kinds of ellipses, the long-division symbol, support for the function keys on Apple's Extended keyboard, and a spring-loaded symbol palette that replaces the cumbersome font matrix. Integrals, parentheses, and braces of all sizes can be constructed three ways, using

the Symbol font or combinations of curves and lines. Equations are saved from session to session, and a thorough on-line help system has been added.

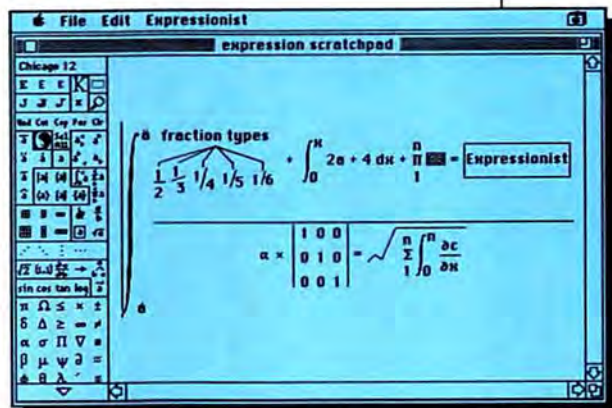
Expressionist is compatible with all major page-layout programs, word processors, databases, new-generation spreadsheets like Trapeze, presentation, drawing, and illustration programs — anything that can import PICT files. (Adobe's Illustrator 88 is a notable exception.)

It contains all the elements necessary to compose virtually any equation, including matrices, tree diagrams, and lists. Its algorithms for placing symbols produce textbook-quality output, and features like automatic italicization, character squeeze, and spacing for PostScript or dot-matrix printers work flawlessly. Expressionist allows you to determine the position of any equation element interactively, and gives you more control over the finished product than any other equation editor.

Although some keyboard commands and defaults are different in Expressionist 2.0, you can read files generated in the previous version using a special "Preferences" file that restores the original interface.

Expressionist 2.0 includes both the DA and the workalike application, and it lists for \$129.95. Registered users can obtain the upgrade for \$29.95. Contact Allan Bonadio Associates, 814 Castro Street, San Francisco, CA 94114; (415) 282-5864.

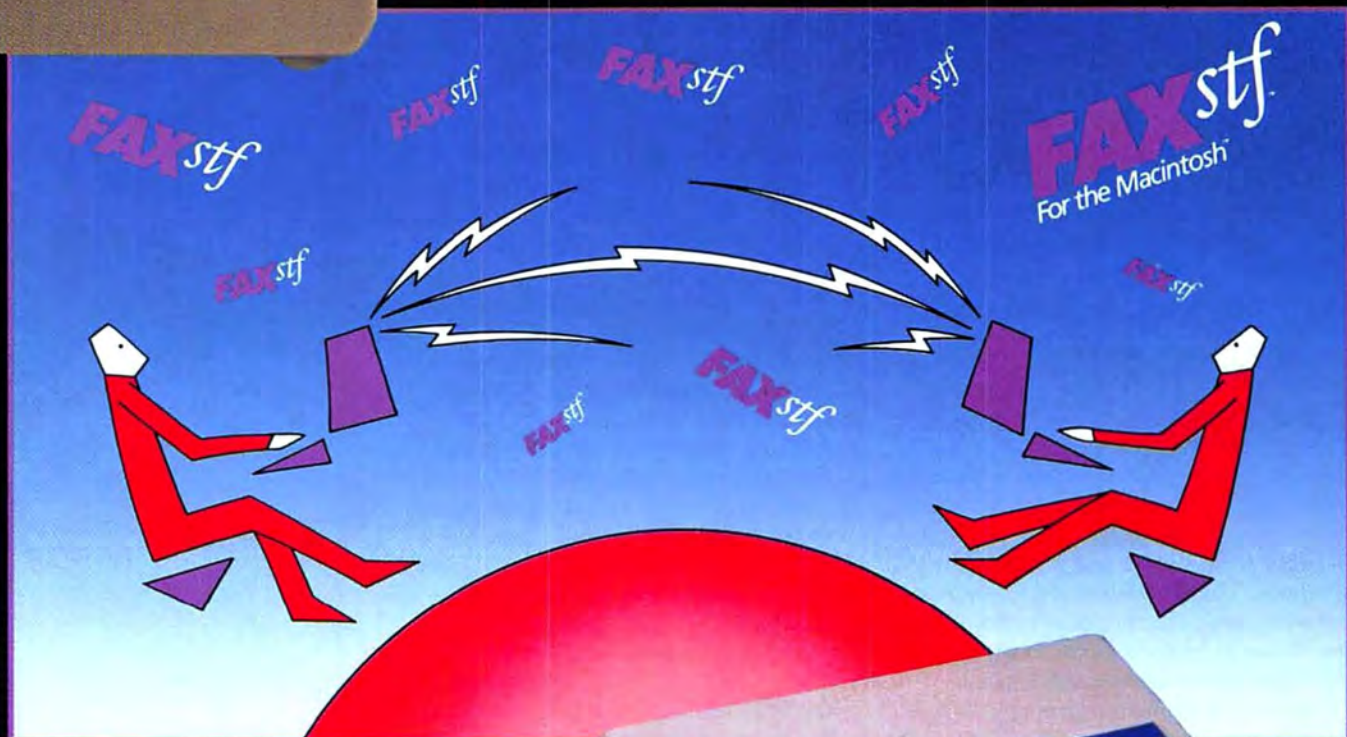
— Linda Custer



Expressionist 2.0 can create an equation for every need, including integrals, matrices, and tree structures, such as this one for fractions. A spring-loaded palette keeps all the symbols within easy reach, and a "tweaking tool" (concentric boxes at top right) allows you to move pieces of the equation with a roll of the mouse.

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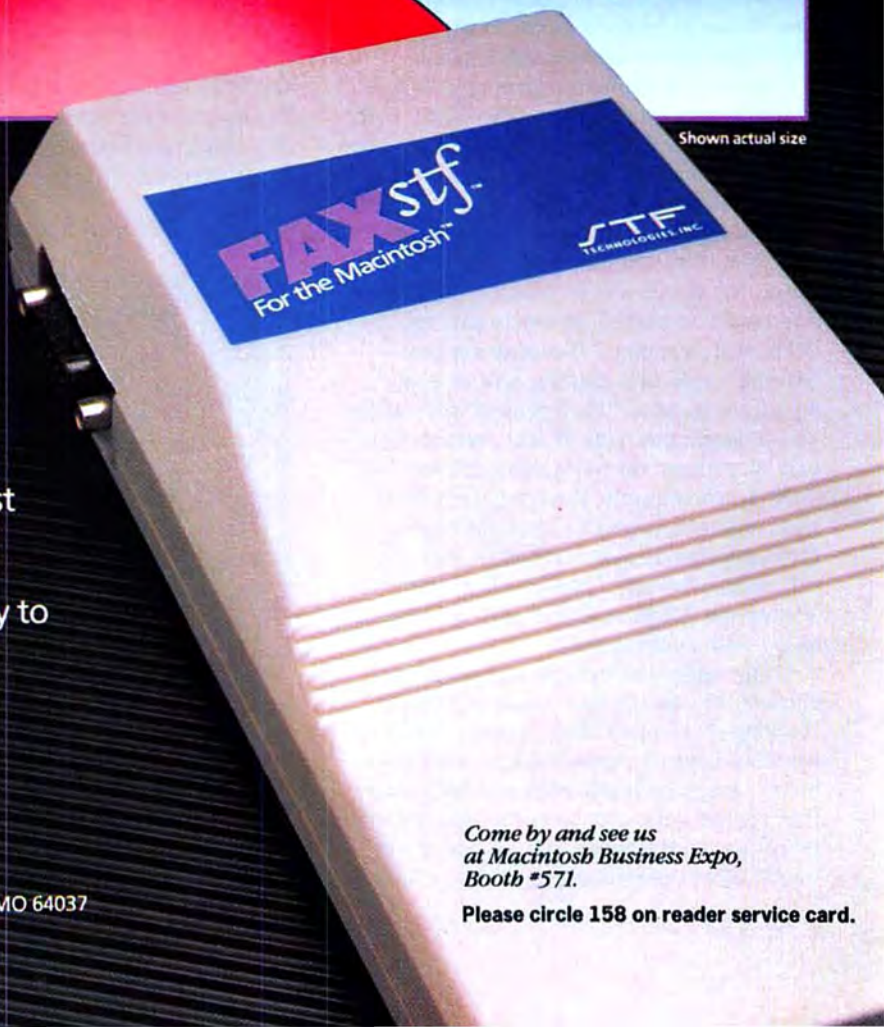
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Riding The Cotton Tales

Remember those car commercials where the words for the jingle scrolled across the screen while a little bouncing ball led you through the chorus? Well, now you can follow the hopping rabbit as you learn word processing and desktop publishing with Cotton Tales from Mind Play.

Beginning readers as well as beginning publishers use Cotton, the bunny cursor, to enter text and pictures, and insert, erase, and copy material. With two separate editions, Cotton Tales can be helpful for teachers preparing lessons as well as for children practicing at home. Both packages include Challenge Upgrade, which enables you to customize the program according to a user's abilities. For example, you can add words to the library (as they are learned) and turn off any of the modes (typing, graphics).

Each package also has 192 graphics, 616 words, automatic worksheet grids, picture translator, typing, and printout options. Cotton Tales, priced at \$49.99, is available from Mind Play at 100 Conifer Hill Drive, Bldg. 3, Suite 301, Danvers, MA 01923; (617) 774-1760.

— Kristi Coale

Type Casting

PostScript typefaces are proliferating rapidly, with two major players, Compu-graphic and Letraset, entering the market this fall. To keep track of this font frenzy, MacTography has published the *PostScript Type Sampler*, which contains more than 800 PostScript typefaces from 17 manufacturers. Instead of culling font ads from back issues of *MacUser*, you can flip through the Sampler, locate the typeface you need, and order it either from the maker or MacTography. The Sampler is also handy for comparing different companies' versions of the same typeface. The type samples are 20 points in size and were typeset on a Linotronic 300 and printed on coated stock.

The Sampler costs \$53.95 and will be updated twice a year. Another \$20 gets you the Typeface Notification Newsletter. Contact MacTography at 702 Twinbrook Parkway, Rockville, MD 20851; (301) 424-1357.

— Aileen Abernathy

Photo Finishing

Color desktop publishing on the Mac takes another leap forward with the announcement of PhotoMac. This advanced imaging software enables small DTP operations to produce photographic-quality color — a full 24-bits worth — at a fraction of the current cost. PhotoMac puts many color prepress tasks on the desktop, including image retouching, masking, color correction, and four-color separation.

Color photographs and other images may be imported to the Mac environment via video, using hardware such as Data Translation's ColorCapture, through color scanners like the Sharp JX-450, or using traditional PICT files. PhotoMac can then be used to sharpen or blend colors, resize the image, touch up washed-out tones, or globally change a hue. Once you're satisfied with your handiwork, a four-color separation of the photo can be dumped directly to a Linotype L300, which produces film ready to be stripped into a printing plate. PhotoMac pictures will also be compatible with page-layout programs such as QuarkXPress 2.0.

Although PhotoMac works with 24-bit images, it still displays color photos on Apple's standard 8-bit color monitor. This bit of wizardry alone saves the cost of an expensive monitor and video board. While



This photomontage was created in PhotoMac. The Boston skyline was duplicated horizontally, and a skyscraper was airbrushed out. The whole image was copied vertically, and the bottom half was darkened and rippled to simulate a water reflection. The other images were then pasted in, some inside one another. Finally, the watch's color was changed to gold using RGB color-correction techniques.



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you can't see all of the color on-screen, zooming in on an image lets you limit the range of colors and see more of the 24-bit information. PhotoMac also requires only 2 megabytes of RAM because a virtual memory system stores part of the on-screen image on a hard disk.

PhotoMac ships this month and sells for \$695. It's available from Avalon Development Group, 1000 Massachusetts Avenue, Cambridge, MA 02138-5304; (617) 661-1405.

— Ben Templin

Tracing TeXtures

TeXtures, a Mac implementation of the typesetting language TeX, is weaving its way through a complicated pattern of ownership. Addison-Wesley, the original owners, bowed out after deciding computer software didn't jibe with textbook publishing. The new publisher, Kellerman & Smith, promptly split into two companies. One of these, Blue Sky Research, now handles TeXtures exclusively, including sales, customer service, and technical support.

Blue Sky says TeXtures 1.01 is significantly faster than the previous version and is compatible with MultiFinder, allowing the program to set type in the background while other applications are active. TeXtures now comes with a ninety-day guarantee, and there's a toll-free customer support number: (800) 622-8398. For more information, contact Blue Sky Research at 534 Southwest Third Avenue, Portland, OR 97204; (503) 222-9571.

— Aileen Abernathy

Springboard Bounces to the Mac

If you've been wishing for an inexpensive DTP program that does everything — page layout, word processing, and graphics — your wishes have come true. Springboard Publisher, an integrated package already available on the Apple II and MS-DOS machines, has come to the Mac. The program is aimed at business people and students who want professional-looking documents but don't like the expense or steep

learning curve of high-end DTP products.

In essence, Springboard Publisher lets you create text and graphics within a page-layout program. The page-layout component contains many features of more expensive programs, including automatic text flow, text wraparound graphics, and auto-hyphenation. One novel feature is that page orientation can vary within a document. The word processor and MacPaint-like graphics segments are full-screen implementations that have most of the features and speed of stand-alone programs. You can switch back and forth between the three components at any time by clicking the mouse. Text and graphics can also be imported, if you prefer.

Springboard Publisher is priced at \$199.95. For more information, contact Springboard Software at 7808 CreekrIDGE Circle, Minneapolis, MN 55435; (612) 944-1832.

— Aileen Abernathy

Positively Postscript

As PostScript clones prepare to do battle with the genuine article for market share, Adobe is shoring up its defenses. PostScript's originator recently unveiled a new logo that will appear on printers and other output devices equipped with the real McCoy. Adobe hopes this seal of approval will fend off competitors that have implemented their own versions of the PostScript language interpreter.

— Aileen Abernathy



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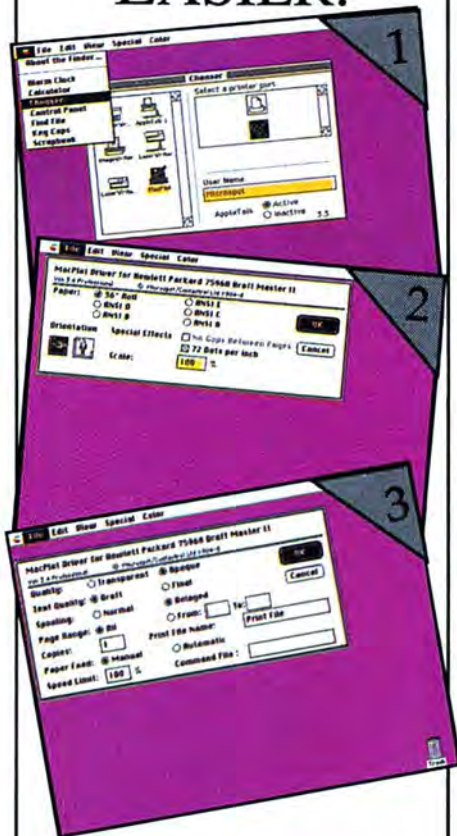
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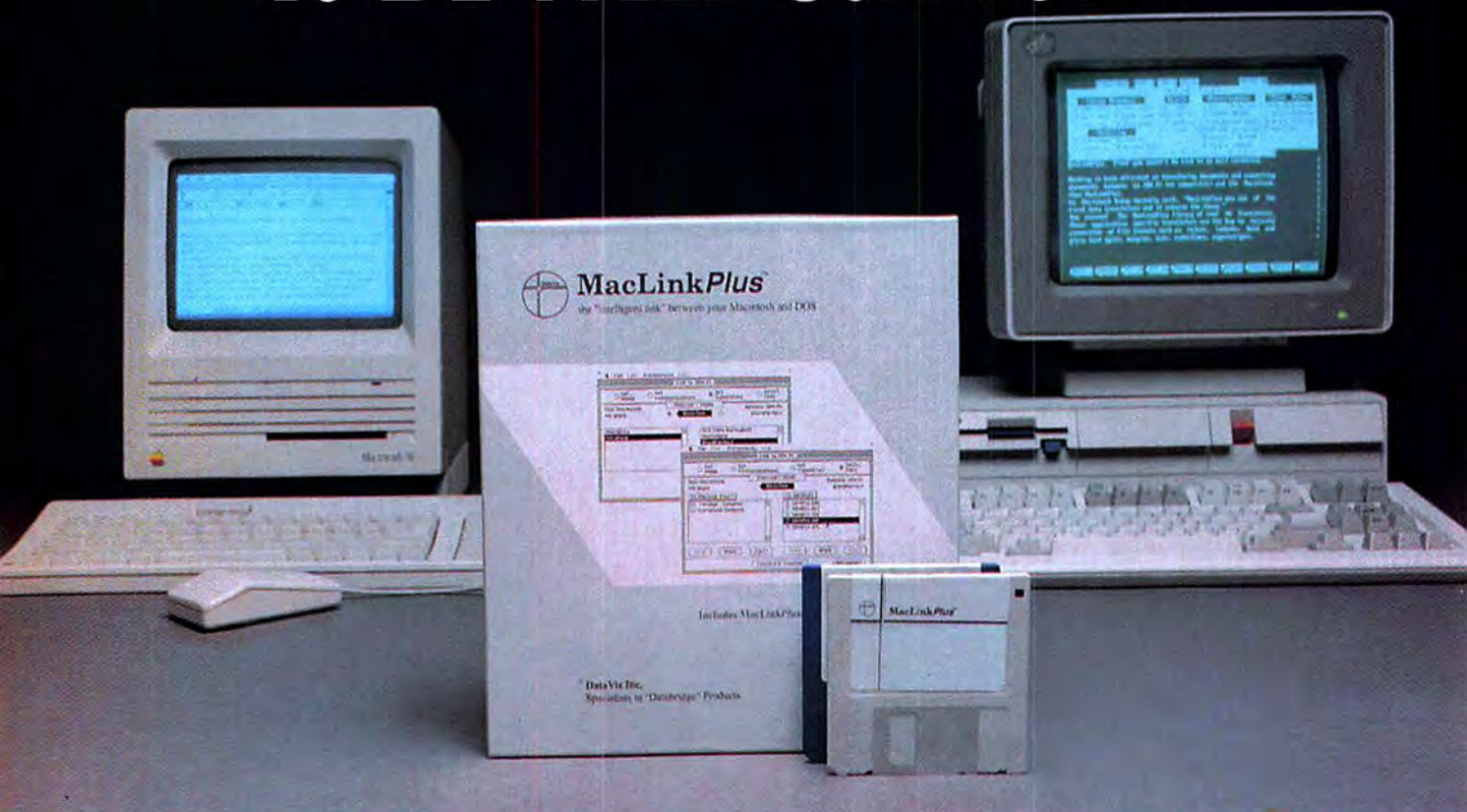
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A Retouching Story

Photo imaging is hot, and with ImageStudio, the Mac leads the pack.

ImageStudio redefines our conception of Mac graphics. It makes computerized photo retouching accessible and affordable, and it streamlines the process of desktop publishing. A breakthrough program, it's the first product out of the gate in what is sure to be a well-contested race.

All that said, it's understandable that the operation of an application this powerful can be difficult to visualize. Since visualization is what ImageStudio is all about, it seemed natural for me to show what the program can do, rather than merely describe it. So, my mission was to find an image, transform it in step-by-step fashion, and uncover, in the process, both its strengths and weaknesses.

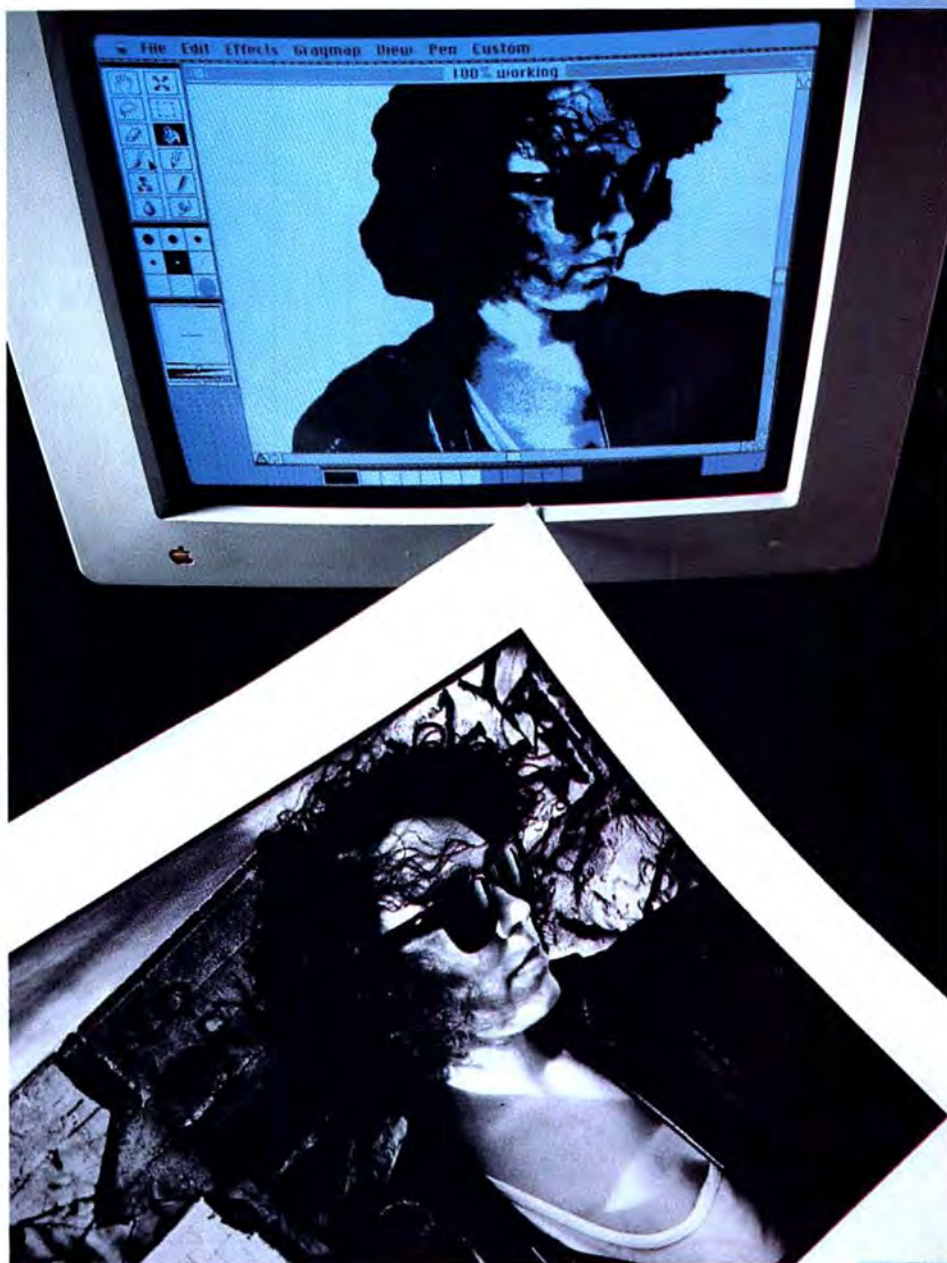
Is It Real Or Is It ImageStudio?

Simply put, ImageStudio is a paint program for photographs. But, unlike a standard paint application, ImageStudio paints in gray — 65 shades to be exact. With it, digitized images can be retouched, enhanced, combined, and manipulated for special effects retaining nearly all the quality of a photograph.

After you're satisfied with the image, the program can screen it into a halftone and output it at the working resolution of any PostScript device from LaserWriter to Linotronic. Thus your publications no longer have to go to the printer with holes where the pictures should be.

Getting The Picture

Before ImageStudio can work its magic, a suitable image must be digitized by an optical scanner. ImageStudio reads generic TIFF, PICT, and MacPaint files, as well as other formats, including ThunderScan's. Most often, ImageStudio will be used on previously scanned images that need alteration before inclusion in a document. To simulate these conditions, I selected images



BY CARLOS DOMINGO MARTINEZ

from readily available sources. Most came from The DarkRoom, a library of ready-to-use "clip photos" from Image Club Graphics.

Although ImageStudio is replete with special effects capabilities, I opted for a conservative approach. My goal was not to use every tool in the program, but rather to arrive at an image that still looked like a photograph.

Zap That Commercial

The original image was a promotional

photo (Figure 1). Most of the illustrations for this article are screen shots that were cropped to isolate an interesting area. During their actual production, they began as large high resolution TIFF files that I converted into ImageStudio's more compact RIFF format to free up disk space. In one case, a file was reduced in size from more than 1.2 megabytes to 947K.

The first step in transforming this image from a commercial to an editorial purpose was to remove the advertising and replace it with a different point of interest. I decided to paste in other images so they would look like photographs arrayed in a display next to the Mac (Figure 2).

This turned out to be relatively simple. First I opened each image and, selecting just inside its edges with the Marquee, copied it. The exception was the "Sunbather," where I used the rectangle to crop the image more tightly around the subject. The copied image was pasted into a new document. Then, the image was reselected with a larger selection marquee so that a white border was included to represent the edge of a typical photographic print. The image was then pasted into the project image and its final size was controlled by using the Marquee to define the paste area.

ImageStudio resizes the image being pasted to fit the area selected with the Marquee. ImageStudio has no numerical scaling option, but you can resize a selection and still retain the height/width ratio by holding down the Command and Shift keys when first drawing your copying Marquee, and then again when drawing the pasting Marquee. In both instances, your selection is limited to a perfect square. In this case, I couldn't use that feature because I needed a rectangular area, not a square. I made no attempt to be precise; I simply eyeballed it.

To arrive at a reasonably pleasing composition, I changed the cropping and placement of the phoney photos several times during the course of the project. Since ImageStudio has a paint-like environment, once an image is pasted in, it can't be moved. Thus, undoing anything but the most recent modification requires reverting to the last saved version of your work — or starting over. I began to wish for an object-oriented capability that would allow simply shuffling the photos into their final positions. As it stands, it's best to plan carefully. I did a mock-up of the design before settling on placements. To preserve detail, I opened ev-



Figure 1. The project image, before. Its commercial orientation caused me to reject it initially, but a second look uncovered its potential.



Figure 2. The project image, after. The right side has been "made-over" with images pasted in to resemble a display of photographs.

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ery image at its highest resolution, which taxed my 5-megabyte Mac II to the limit.

Screening Kids

The dark screen of the Mac in the original image was brought to life by using a section of the "FireKids" photo from Image Club. They looked personable enough to merit a starring role.

Their photo was cropped into a portrait and pasted inside the Mac screen. It was not a perfect fit because the Mac is at an

angle to the plane of the image, and the pasted selection comes in flat. The ability to freely rotate selections (another wish) would have been useful here. I did a test fit to assess the problem, then cropped the portrait again to lighten the workload. The resulting paste meant I had to reconstruct the Mac at the lower left and recreate the top and upper-right portion of the portrait.

Retouching with ImageStudio is different from working with an ordinary paint application. First of all, you're dealing with grays — lots of them — and those gray tones represent the light reflected by an object and recorded on film. So not only are you confronted with more options, but you also have to make subtle choices. Careful work has its rewards, though (Figure 3).

ImageStudio normally displays a palette of 17 shades of gray, which is a somewhat abrupt transition from white to black. You can create your own gray-scale palette in an unused section of your document by making a smudge, or a shape with graduated fill, which you can then use as a source of many grays. You can select a gray shade by simply Command-clicking with a tool on the desired gray shade in your custom "palette," or within any other item on the screen. Most of the close-up work was done in this way.

To reconstruct or extend larger areas, I selected adjoining sections with the Marquee or the Lasso and then dragged them into place. To blur the edges of these pixel selections, I overlaid them in random patterns. This technique works at any magnification, and its effect is more subtle at the higher magnifications.

Fading Into The Background

The next step was to remove the last vestiges of the Image Club poster and, simultaneously, reconstruct the background drapery. The same retouching techniques outlined above were employed here, but the demands of the task were different. Whereas in retouching the Mac screen the goal was a distinct boundary, here the need was for a diaphanous blending of light and shadow. I tried following the flow of the cloth and the pattern of splotted paint in a logical but casual manner. Several takes were necessary.

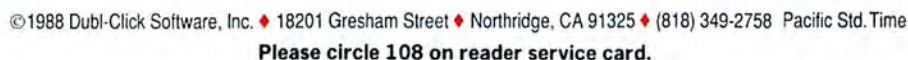
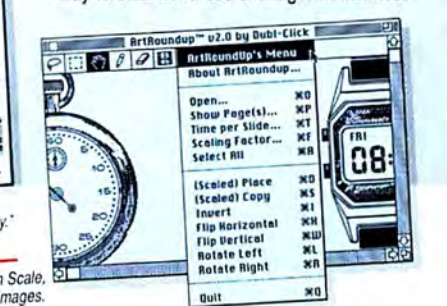
Redoing the background offered an opportunity to use some of ImageStudio's more esoteric tools (Figure 4). New paint splotches were copied and dragged into



Figure 3. Getting the FireKids into the Mac screen took some fiddling. Before the final paste I rounded the corners of the image to minimize the touch-up work. Parts of the Mac screen had to be reconstructed over the pasted-in Kids.



Figure 4. Major retouching was necessary to restore the background. Remnants of the original advertising are still visible at left.





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product introduction, Apple chairman John Sculley lauded Novell for its AFP support and contrasted Novell's product with server to

InfoWorld, June 20, 1988

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place, then smoothed with the Water Drop. The Drop was also used to blend the transitions from darks to lights. Other areas, where the pattern looked mottled, were softened with the FingerTip. Note that pressure and shading variables are adjustable on all ImageStudio tools, extending their range of action.

Other touch-ups included the removal of the dark shadow on the front-right face of the Mac and the slight darkening of the beveled facets of the Mac case above the screen. The former had been rendered meaningless, and the latter needed definition.

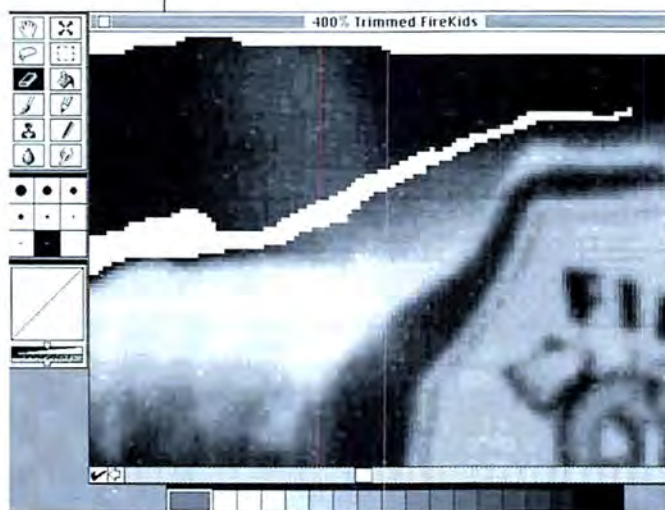


Figure 5. Under magnification, the FireKids were trimmed right at their edge. This screen shows the detail work around their hats.

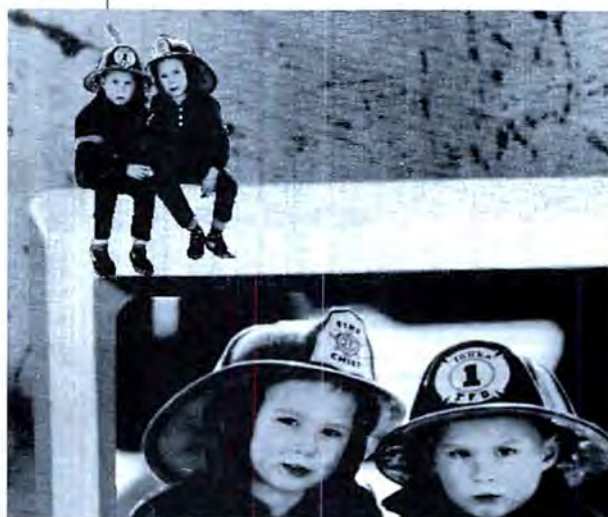


Figure 6. Finally the finished Kids were copied, reduced, and pasted atop the Mac.

FireKids To The Rescue

At this point the image was finished. But it still needed something. Also, I still hadn't illustrated ImageStudio's ability to seamlessly "drop" selections into a background.

It was time for an encore from the FireKids. Why not separate them from their background and drop them into the project image? Yeah, sitting on top of the Mac. Humor, three-dimensionality, yeah, that's it.

This was the toughest part of the whole thing. First, I copied the image to a new document, to safeguard the original. I then cropped out large sections and began the task of trimming the Kids precisely around their edges (Figure 5).

I used the Eraser at various magnifications, frequently zooming in and out to get my bearings. Zooming, by the way, is my preferred method for getting around an image. Much faster than grabbing or scrolling.

In the shadows around the Kids' legs, I built edges where none existed. All this detailed work and pseudo-realism took time. After a while, I began to wonder whether the FireKids were siblings, how old they were today, and whether by now they had FireKids of their own. As I said, it took some time.

Finally, I copied with the Marquee and transferred them to the project image (Figure 6). Command-clicking outside the selection "drops" it in place without the white background.

Sharp-eyed readers will notice the Kids have been flipped left to right. This was to place them better on the edge of the Mac.

Gray Matters

The Graymap Editor is the hub of ImageStudio's imaging capabilities. It serves as the interpreter between what's stored on disk and what you see on-screen. With it you can alter displayed gray values and adjust contrast and brightness, as well as create a number of special effects on all or part of an image. In most instances, you'll use it to lighten an area for more detail, darken a shadow, mask an imperfection, or minimize the tonal differences of merged images.

To illustrate the use of the Graymap Editor, I decided to produce a special effect on the Sunbather. I selected it and moved the Graymap sliders to achieve higher contrast and greater brightness. Note that the tonal

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Figure A. The FireKids look a little uncomfortable in the country road scene. Lighting differences in the two original images (and the fact that they're sitting on air) are largely to blame.

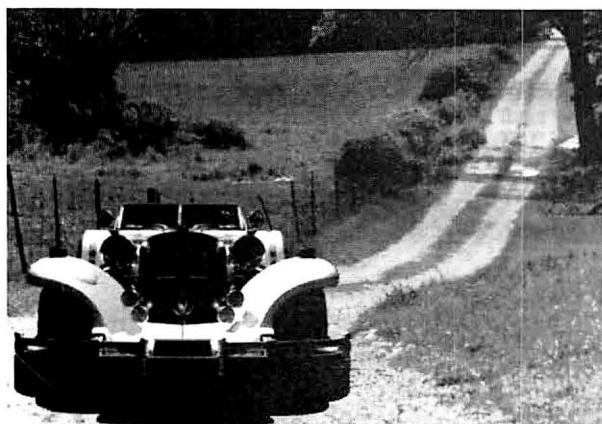


Figure B. The auto fits more easily into the road scene because its orientation and lighting somewhat match the surroundings.

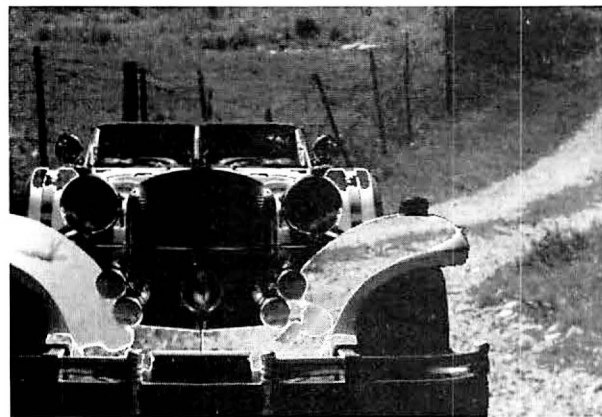


Figure C. When an image containing pure whites is "dropped," the receiving image shows through. Work around this by carefully lassoing and using a standard paste, or darkening the whites of the object before copying it.

The Nuts and Bolts of Imaging

At \$495 ImageStudio is not cheap, but it's not out of line with the current generation of Mac business software. And when compared with what computer-imaging software used to cost, it's a bargain.

But, of course, that's only the cost of the program. The true cost of ImageStudio really has to include the hardware platform necessary to run it effectively.

To get full value out of the program, a scanner is essential (after all, your pictures have to come from somewhere). Naturally, the higher the scanner's resolution, the more gray information it can reproduce. And the greater the accuracy with which the scanner's software can interpret that data, the more useful ImageStudio can be.

Since the whole point of ImageStudio is to manipulate images at near-photographic resolutions and tonal ranges, you need an 8-bit video board and gray-scale monitor. This combination yields true, even tones with the brightness of a glossy photograph. Although you can use ImageStudio on standard Macs, the dithered approximations of grays are simply not accurate enough for fine work, and you'll need to produce frequent LaserWriter test prints to check your progress.

Then there's disk storage. Until you begin working with them, it's easy to forget just how large scanned image files can be. For example, both the Country Road and FireKids photos each take up more than 1,300K in high resolution TIFF format. To distribute these enormous images commercially, The Image Club Graphics collection of "clip photos" comes on CD-ROM.

Five such TIFF documents can easily eat up 10 megabytes of disk space. You can save considerable disk space if you use lower resolution graphics. Don't panic, though, because if your final image is slated for LaserWriter output, 75 pixels-per-inch (ppi) graphics are perfectly acceptable, since the LaserWriter's halftone output resolution can't do better than that.

RAM, Bytes, Worms

If you'll be storing large numbers of your own images, especially at high resolution, consider a write-once, read-many (WORM) drive. In any case, plan ahead. Gray-scale image work also requires considerable RAM. The ImageStudio manual specifies 1 megabyte as minimum, and 2 megabytes for running it under MultiFinder.

Those figures are guidelines for 75-ppi work. At 300 dpi, the ante skyrockets. A 5-x-7-inch image needs more than 3 megabytes to be opened in its entirety. Add the memory requirements of the program itself. Figure in your System, and a bit of room for popping open a desk accessory now and then, and you'll need a 5-megabyte machine. Go for 8 megabytes if you can afford it.

Finally, there's speed. ImageStudio isn't slow, but some pasting operations take considerable time. To navigate around documents this size with any degree of crispness, a Mac II is desirable.

ImageStudio can run on a Mac Plus with two disk drives, but it's a lot like driving your Testarossa at 55 — hardly the genuine experience, and frustrating too. For many good reasons, ImageStudio needs a Mac II the way a Ferrari needs an autobahn.

changes, shown graphically in the Graymap box, affect the entire image (Figure 7).

Using the Apply Graymap command ratifies the effects produced by Graymap editing. In effect, it permanently changes the stored memory of the image so that it looks like what you see on-screen. The new change, however good or bad, becomes the "normal" image, as if it had originally been scanned that way. If you have an area selected, ImageStudio isolates the changes to that area when the Apply Graymap command is invoked. I did this after the composition was finalized, but this could have been done during the pasting process itself, in which case the Graymap would have been altered for the selection before it was pasted in place. The result in this case is a Sunbather with heightened contrast and fewer gray values, but the remainder of the image is unchanged (Figure 8).

Other Graymap effects are possible. Reversing the slope of the line in the Graymap box results in a "negative" image. Drawing stepped horizontal lines produces a posterized effect (also available with more precision as a menu command). By freehand drawing the Graymap line, you can produce unique combinations of grays, from well-adjusted to unearthly.

If your image has a particularly dark or light area from which you need to bring out details, you can select the problem area and try the Equalize command. This effectively orders ImageStudio to adjust the the entire image so that your selection looks as "normal" as possible. The results can vary greatly, depending on the distribution of grays in your selection. As you may have guessed, experimentation is the only way to really get the hang of Graymap editing.

Photo Finishing

By now, you're sure to ask: "Isn't that a lot of work for one image? How long did it take?" Well, yes it is, but measured against the time and effort to produce a similar image by photographic means, the time spent is virtually negligible.

Once the project image was completed, I cropped it tightly to bring all the elements into better balance. This eliminated a lot of the background reconstruction. But my feeling is that the areas still visible might not look as good if I had not taken the entire background into account. Also, doing the background first let me crop with total freedom. And I couldn't resist a nudge of



Figure 7. Image Studio's Graymap Editor lets you adjust the gray values of an entire image or just a part. Although the Sunbather has been selected, the effects of the editor affect the entire image until the Apply Graymap command is used.



Figure 8. The Apply Graymap command permanently modifies the stored image. It can localize the modifications to a selected area. The Sunbather has a new look, while the surrounding image is unchanged.

the brightness slider to darken the image and give it more "snap."

One final touch-up may have been purely psychological. I went back and added a single pixel line of shadow where the borders of the "photos" overlap. It's visible under magnification but can't be noticed when you zoom out. Still, I swear it looks better. That's one more thing ImageStudio does to you. It brings out all your tendencies toward perfectionism. ☞

CARLOS DOMINGO MARTINEZ IS A MACUSER CONTRIBUTING EDITOR. ALTHOUGH RARELY IN A DARKROOM THESE DAYS, HE SWEARS DEKTOL STILL COURSES THROUGH HIS VEINS.

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TIP SHEET

COMPILED BY GREGORY WASSON

Found a trick, shortcut, or smarter way to get something done with a program? Share your hints by sending them to The Tip Sheet, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. We pay at least \$25 for every hint we publish, plus we'll print your name and hometown.

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If you have a modem with the troublesome "call waiting" feature on a touch-tone telephone, here's how to get around it. Whenever you're on-line and a call comes in on call waiting, your modem connection is nixed. However, if you append *70 prior to the number you're dialing with the modem, you'll revert to one-line operation and other callers will receive a busy signal, indicating that you are indeed at home. In Red Ryder, for instance, the number to dial in your procedure would be: ATDT *70, xxx-xxxx. The comma allows a one-second space between the disconnection of the call-waiting feature — indicated by two dial tone beeps — and when the actual dial tone reappears. CHRIS BURGESS
WILLOUGHBY, OH

PAGEMAKER 3.0

The Shift key unlocks some hidden features that Aldus forgot to put in its documentation for PageMaker.

Shift-click on a page

number icon and you will force a fit to window view when the page turns, no matter what the previous view had been. Holding down Shift while selecting "Go to page" from the Page menu will make the pages turn automatically starting from what page you are on and stopping when you click anywhere in the window. If you have a multipage document, it will cycle through the document and start again at page one, bypassing the master page(s). The views will be as you had last left them for each page.

Aldus does let you in on a couple of things, though. For instance, holding down Shift while selecting 200% view will yield a 400% view. This little gem can be found in the on-line PageMaker Help file. You can also hold down the Shift key and choose Revert in the Edit menu. This will revert to the last mini-save, instead of to the last Save.

While in the Define colors dialog box (assuming you have a color monitor), hold down the Shift key while selecting Edit and you will get the Apple color wheel instead of the normal editing menu. This has been documented, but PageMaker Help incorrectly states that you should use the Option key.

MARTY SAFIR
NORTH HOLLYWOOD, CA

WORD 3.0X

Here's how you can produce columns in Word of

unequal width for use in presentation notes. This is useful if you don't have access to a page-layout program and don't want to resort to the side-by-side paragraph feature. By moving the right margin in and creating a tab stop beyond the margin, you can set up the appearance of a separate column for notes or marginalia. For the line ends of the marginalia you'll have to use Shift-Return instead of a simple Return. (See Figure 1 for an example.) It's not necessarily the most sophisticated way of accomplishing this effect, but it is quick and easy.

JIM VOORHIES
WHITE BLUFF, TN

It's possible to format music time signatures in Word using the program's formula feature. While these sig-

natures won't look exactly like they should, this procedure is very useful when you're writing music papers and dissertations and don't have a music notation program.

Make sure that you have Show ¶ turned on (press Command-Y if it's not) before you start creating formulas. To create the *alla breve* symbol, for example, press Command-Option \ then type O(C,I). Other time signatures requiring the superimposition of two characters can be created this way.

It's also possible to create scale-degree symbols using the Schenkerian notation. You may have to raise the circumflex (Option-Shift-N) before you combine the characters, using the superscript feature from the Character Command under the Format menu. To check the placement, simply press



Figure 1: You can include marginalia in a Word document by setting a tab stop to the right of the right margin — nice if you don't want to fiddle with the side-by-side paragraph feature. This has the added benefit of allowing you more of a WYSIWYG look on the screen, as shown here.



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Command-Y (Show/Hide ¶). The typesetting code will disappear and the characters will superimpose. (See Figure 2 for examples.) [Some fonts, like Helvetica and Palatino, are better for this procedure than others. — Ed.]

JEANNE SWACK
MADISON, WI

Here's a useful Word technique that is especially helpful in business correspondence such as letters and memos. When you send out a memo or letter to a relatively large distribution list, you generally need to alphabetize this list. This is a fairly standard practice

that ensures nobody thinks they are being slighted by being on the bottom of the list.

You can alphabetize the list on-screen with Cut and Paste, but you can also do it with the Sort command in the Document menu. First separate the "cc:" comment from the first initial with a decimal tab. Set the same tab for each succeeding name. Since it's a decimal tab, the initial letters will all be flush with each other. Then use the Option-Select feature to select the last names only as a column. Choose the Sort command. Your list is now sorted alphabetically by last names. Without the Option-Select feature, the list would be

sorted by first initials. The only cleanup after the sort is to move the "cc:" comment to the top again with a Cut and Paste. (See Figure 3 for a step-by-step tour of this technique.)

LELAND F. MCARTHY
REDWOOD CITY, CA

Word's Glossary can be used to create a graphics database of sorts. Bring a graphic into Word, select the graphic, and press Command-K or choose Glossary from the menu. Give a descriptive name to the image

TIP OF THE MONTH

Formulas (math typesetting) in Word are a powerful way to write equations and create other special effects. The implementation is, however, very "un-Mac-like" compared with desk accessory equation processors (for example, Expressionist). Here's a simple example that shows how to make this feature work for you instead of against you by creating "equation skeletons" defined as Glossary items.

First turn Show ¶ on (Command-Y toggles it on and off). Type Command-Option-backslash-F(*n*,*d*) as the code for fractions. Format the *n* (numerator) and the *d* (denominator) in ital-

ics. Select this code, choose Glossary from the Edit menu, type "fraction," and click define. Then, to add it to the Work menu, type Command-Option and click the word "fraction" on the Glossary entry window with the cursor (which is now shaped like a bold + sign). Now when you need to type a fraction simply pull down the Work menu and select "fraction." The formula will appear on-screen. Drag over the arguments *n*, *d* and replace them with your desired numerator and denominator (separate them with a comma). The result will be correctly formatted in italics.

CARSON W. TAYLOR
PORTLAND, OR

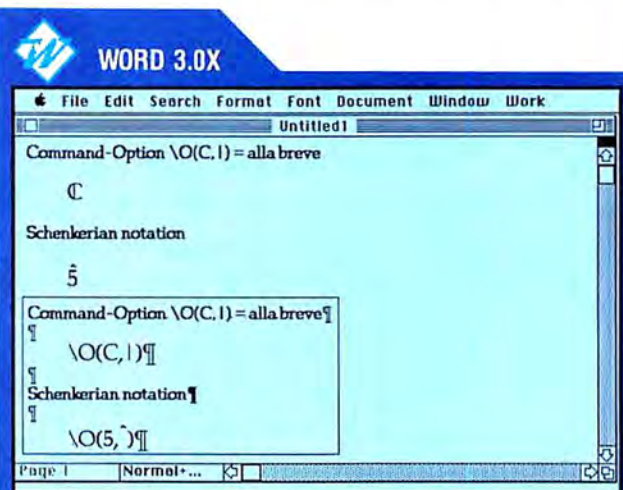


Figure 2: Word's typesetting formula language can be used to create some symbols used in musical notation, such as the *alla breve* or Schenkerian notation. Here you see the finished symbols at the top of the screen and the necessary coding in the boxed area at the bottom of the screen.

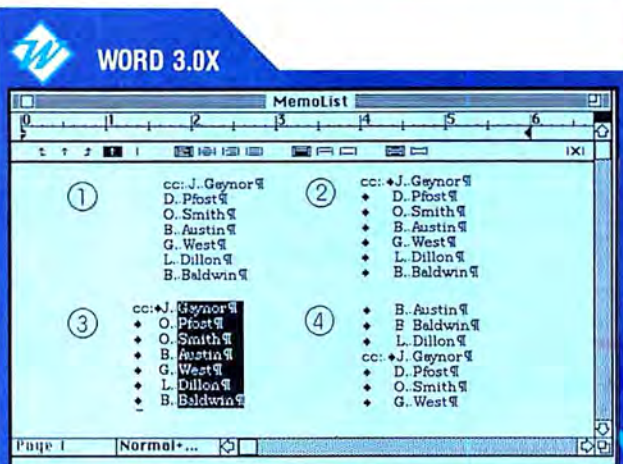


Figure 3: Alphabetizing memo distribution lists is a snap with Word's column select feature (Option-drag select). 1) shows the text as typed in. In 2) decimal tabs have been added to separate the names into a "seizable" column. 3) demonstrates the use of Word's Option drag select feature to separate the last names for consideration by the Sort command. 4) shows the list after Sort. All you need to do now is Cut and Paste the "cc:" comment back up to the top of the list.

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and click Define. The image is now stored in a glossary file. You may want to create a special glossary file for graphics only, or several files for different categories of graphics. Images saved in your glossary can later be added to any Word document.

JEFF LINDSAY
APPLETON, WI



For those who have received the desk accessory Word Finder from Microsoft (this is to be included as a standard feature in version 4.0), here's how you can save space in your System file by loading it directly into the application. Simply double-click on the DA icon. When Font/DA Mover comes up, click on the Open button while holding the Option key down. Then all files and applications may be accessed.

Select the Word application and install the DA into it. Now Word Finder will appear under the Apple menu only when you load Microsoft Word.

CHRISTOPHER PLUMMER
LAMBERTVILLE, NJ

THE DUNGEON REVEALED



In The Dungeon Revealed (and in the shareware versions called Dungeon of Doom), when your player gets to the lower levels, monsters with missile weapons, such as ice and fire, get in your way. The ice and fire weapons tend to kill you off faster. A simple way to avoid this is to get them to follow you. As you approach the stairs, enter them. After you go down or up, reenter

the stairs (step out of them and then back in). You will now be on the same level with the monster(s). Stay in the stairwell. Now remember where the monster(s) were before you embarked on this scam, and click in that direction to fight them. The main benefit at this point is that every time a monster casts something at you, the missile, whatever its nature, will bounce right off. Live long and prosper!

JOHN ANDREW SHAFER
CHAGRIN FALLS, OH

FREEHAND



FreeHand offers text on a curved path, but accurately placing text around the outside of a circle can be a challenge. The text normally starts to wrap clockwise around the outside of the circle beginning from the 9 o'clock position. But to center a word or phrase at the top of the circle, first draw your circle. Then select the Text tool and click your insertion point above the circle. In the Text dialog box that pops up, choose the typeface, point size, etc., and type in your text. OK your selections. Select the text block and the circle, and then hit Command-J to join your text to the circle. You will notice that your text moved to the center of the curve path at the 3 o'clock position. To move it to the 12 o'clock position, use the Rotate tool and rotate the joined circle and text 90-degrees counterclockwise by dragging the bottom-right size box to the position of the top-right size box.

Getting text to wrap

counterclockwise along the inside of the circle, centering at the 6 o'clock position requires a technique that is similar to the previous procedure, but with a slight twist. Follow all the previous steps, hit Command-J to join text and circle, then use the Mirror Reflection tool to flip the circle vertically. Now the text is wrapped along the inside of the circle at the bottom. To combine the two circle texts as in Figure 4, select them, choose Align elements (from the Element menu), and hit the radio button Center for both Horizontal and Vertical alignment — the circle is now unbroken!

CLARICE KEEGAN
SEATTLE, WA

FULLWRITE PROFESSIONAL



FullWrite Professional may finally be here, but its promise of true

WYSIWYG is not — at least if you use an ImageWriter.

Printing across the full available width of the page is impossible with the Tall Adjusted option turned off. Tall Adjusted Off has been the preferred mode of printing text, since it gives better resolution on the ImageWriter. Other word processors have been able to cope with Tall Adjusted both on and off. Since FullWrite cannot, the solution is to print always with this option on. Ordinarily, you'd have to remember to check the Tall Adjusted box under Page Setup in the File menu each time you wanted to print a document. But FullWrite's stationery documents can eliminate that step. Simply begin with a blank document. Check Tall Adjusted on the Page Setup... dialog box. Then do a Save As..., click on the File Format button, and select FullWrite Profession-

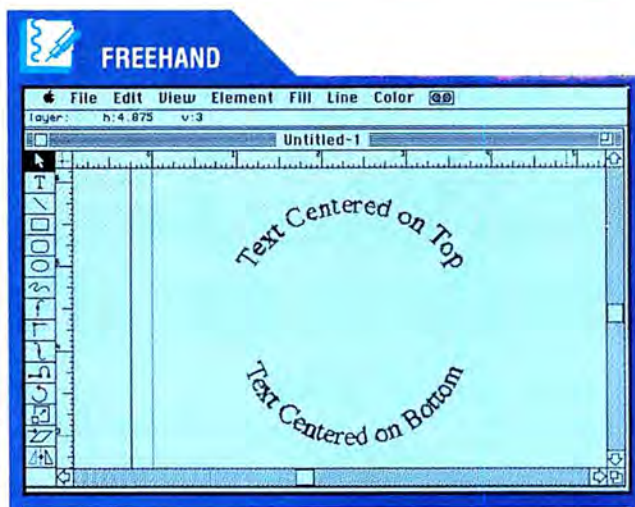


Figure 4: FreeHand allows you to join text to a curved path, but getting it to center just the way you want it can be a pain. Here text is centered at 12 o'clock high and 6 o'clock low — the circle is, indeed, unbroken.

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al Stationery. Name the document "FullWrite Stationery," and save it in the same folder as the FullWrite application itself. Make sure that you spell "Stationery" correctly — many people spell it as "Stationary" — a mistake that will, appropriately enough, stop you in your tracks.

Now, each time you open FullWrite or ask it to create a new document, it will use that file as the default. In addition to any font or style settings, the stationery document remembers the Tall Adjusted setting, and you can print without worrying about it.

[You can also use this procedure on documents in WriteNow because this program uses the name Stationery as a template for all new documents. — Ed.]

DAVE FELL
CHICAGO, IL

HYPERCARD



A common complaint about HyperCard and desk accessories is the need to close a desk accessory before using HyperCard again. There is a way around this.

Make sure that the Tools "windoid" is open in the stack. Move the desk accessory window (here the Scrapbook) to the bottom of the screen (so it is out of the way). Now click on the Tools "windoid." You will notice that the title bar of the desk accessory window is now white, indicating that it is inactive. You can now use HyperCard normally while the desk accessory waits for a click in the title

bar to reactivate it. In the case of the Scrapbook, this is handy for copying clip art from the stack into the DA.

DAVE M. LOVERINK
JOHNSTON, IA



In HyperCard, you cannot use tabs in normal touch-typing mode — as with indentations. To remedy this, use either QuicKeys or MacroMaker (in System Release 6.0) to create a macro composed of five spaces (or whatever). Assign this to the Tab key. QuicKeys and MacroMaker will both intercept the customized tab before HyperCard will. The result: an indentation each time Tab is pressed. Since both QuicKeys and MacroMaker allow you to define application-specific macros, the Tab key will operate normally in other programs.

DAVID CLARK
PALM BAY, FL

IMAGewriter



I have finally found a perfect solution to the problems that the ImageWriter II has in printing the first couple of lines of a page. It is not always possible to leave a page dangling off the back of the machine or to leave the first several lines blank in order to apply the necessary pressure to avoid the printer's compression of the first line or so. These two techniques work in some cases, but they still won't help when you want to print on cut sheets, such as letterhead.

Just stick a couple of Scotch Post-it notes at the center-top of the paper after you have placed it in the

printer. This will give you something that you can hold on to as you pull *very gently* back and down while the first couple of lines print. No more smudges, condensed first lines, printing the same document seven or eight times, changing ribbons to lighter ones, adjusting the print head pressure, or swearing. The notes peel right off without damaging the paper.

JO ANN MOOS
WESTBURY, NY

SUPERPAINT



If you find yourself constantly cleaning noseprints off your screen from trying to move tiny objects around in SuperPaint, try drawing a line near the object to be moved, then group the two objects, and use the line as a handle to move the miniscule item to its new destination.

In addition, this also keeps the pointer tool from blocking your view. Or you could just tie a handkerchief over your face!

[This technique works in a number of graphics programs that allow grouping — try it out! — Ed.]

GEORGE E. SPIVEY
DUCKTOWN, GA

MACMONEY 3.1



In her review of MacMoney (MacUser July '87), Bonnie Walker states that she decided to handle her withholdings by entering the total amount of the deductions as a cash deposit and then subtracting each deduction as a separate cash transaction.

There is a much easier and more logical way to handle this. Enter regular earnings from your employer in category 1 and then enter each deduction and tax withholding as negative amounts in their appropriate categories. The balance of the deposit will be net earnings.

This limits such transactions to one entry and will give proper totals at year end for tax-filing purposes. The same method is applied to deposits in which a certain portion of the check is kept as cash. The amount of the check deposited is entered in category 1, and the cash kept as a negative in category 2.

A negative cash deposit will then become positive cash received in the cash account.

CHARLES W. CLOGSTON
MEMPHIS, TN

EXCEL



A recent MacUser tip in the March '88 issue dealt with making cube roots in Excel. It noted Excel has a SQRT function, but no such function for other roots.

Then it detailed a macro function for taking cube roots. Although this works, there is a much simpler and more versatile means for root taking.

If you want to take the Yth root of X, simply enter function:

$$=X^{(1/Y)}$$

This conforms to mathematical convention. The computer sees no difference between numbers like 1/3 and numbers like 3.

STEPHAN G. CHASE
POTOMAC, MD

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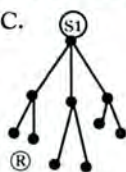
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And
MANY MANY MORE

And
MANY MANY MORE

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by Michael Swaine

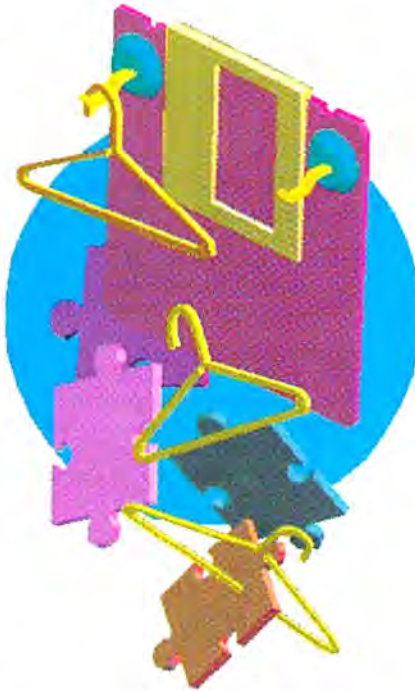
Son of Programmer's Pegboard

One of the least offensive bits of current computer jargon is the new-vogue phrase *reusable software components*. Two of the three words have been part of the language longer than the current generation of hardware, and the meaning of the whole phrase is intuitively clear. Reusable software components are pieces of a program (in moving into HyperSpace, we automatically translate the word *program* into *script* or *stack*) that can be reused in another program.

Given the number of fonts, icons, external commands, external functions, scripts, buttons, and other such components that you may incorporate into your stacks, it's good that you don't have to build them from scratch for each stack. The concept of reusable software components is one of the cornerstones of HyperTalk programming. However, keeping track of these components is one of the real headaches of HyperTalk programming. When you have dozens of fonts, scores of icons, and many handy scripts and buttons that you can reuse, you have an information management problem on your hands.

Last month we introduced you to part one of my Programmer's Pegboard stack, a database for keeping track of where you have installed such reusable software components as fonts, icons, external commands, external functions, scripts, and buttons. The code for Programmer's Pegboard consists of a script for a stack to be named Pegboard, and a Home stack handler that enables you to invoke the Pegboard from any other stack by typing "pb". You have those things if you have last month's issue.

This month we present a set of handlers that turn the Programmer's Pegboard database into something much more useful. With these handlers in-



stalled, Programmer's Pegboard will not only keep track of the information about the components but will also maintain the *components themselves*, managing the process of installing them in and removing them from your stacks.

The first handler, *stackUpdate*, should be placed in the Pegboard stack script, where it replaces the dummy handler supplied last month. This handler merely messages the appropriate one of the other three Pegboard stack script handlers supplied this month: *resourceUpdate*, *scriptUpdate*, and *buttonUpdate*. One of these takes care of the installation and removal of scripts, one is for buttons, and one is for resources. They do the actual work of installing and removing the components in the stack from which you invoked Pegboard. All four of these handlers should be placed in the stack script of the Pegboard stack.

Why this particular breakdown of

components into scripts, buttons, and resources? Resources can be reused in different stacks, and scripts can be attached to any appropriate object. But buttons are just one of the kinds of HyperCard objects; why are there no handlers to manipulate cards, fields, and backgrounds? Because of lack of imagination, so to speak: We can't imagine that very many cards, backgrounds, or fields would qualify as reusable software components. Their scripts, yes; but the objects themselves, with all their visual properties, impose their own personalities too heavily on the stacks in which they appear to truly be used as reusable software components. This is not to say that you would never have reason to copy a field or card from one stack to another. But you can always do that on an ad hoc basis.

The reusable buttons, scripts, and resources are kept in the Pegboard stack itself. I put them in card 2; the scripts (handlers, actually) in the card script and the buttons on the card. You'll have to put them there yourself, via the usual cut-and-paste methods. You'll also have to install the resources that you want to use and track as part of your library of reusable software components. You can use *Resedit* from Apple for this; it's not convenient for HyperCard purposes, but it's there.

The *resourceUpdate* handler is incomplete as it stands. There is no way from within HyperTalk to move resources around; you have to use an external command. There are several of these that can be downloaded from online services or obtained from friends. The one I use here follows the calling format of Gary Bond's *CopyRes* from his book *XCMDs for HyperCard* (MIS Press, 1988). If you don't have such an external command, Pegboard will work fine with the other (pure HyperTalk) components.

CARD TRICKS



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The structure of the Pegboard stack is as follows: two cards, with four card fields and two card buttons on card 1.

The code for next month's column also includes a couple of other tools: two buttons that make fields visible or invisible, locked or unlocked. You ought to keep the fields of the Pegboard stack invisible and locked for efficient and secure operation.

But if you interrupt the stack script in operation, or double-click on the Pegboard stack from the Finder, you can work within the Pegboard stack, examining its database fields. Adding these two buttons to the card lets you toggle the properties. These button scripts also demonstrate the use of a handy handler appropriately named toggle.

```
-- Handlers for the installation and removal
-- of reusable software components in stacks.
```

```
-- These handlers manage resources, handlers
-- for special messages, and buttons that you
-- find yourself installing often in your stacks.
```

```
-- This month's code is intended to be used
-- with last month's Programmer's Pegboard script.
-- That script implemented a database for keeping
-- track of reusable software components and a
-- user interface for the database; this month's
-- handlers turn the Pegboard stack into a real
-- library of reusable software components.
```

```
On stackUpdate pointer, oldList
-- This handler takes care of the installation
-- and removal of the components.
Put item 1 of line pointer of card field 1 -
into stackName
Repeat with i = 1 to 3
  Put line (pointer + i) of card field 1 -
  into line i of newList
End repeat
If line 1 of oldList ≠ line 1 of newList
Then ResrcUpdate stackName, line 1 of oldList, -
line 1 of newList
If line 2 of oldList ≠ line 2 of newList
Then ScriptUpdate stackName, line 2 of oldList, -
line 2 of newList
If line 3 of oldList ≠ line 3 of newList
Then ButtonUpdate stackName, line 3 of oldList, -
line 3 of newList
End stackUpdate
```

```
On resrcUpdate stackName,11,12
-- This handler installs and removes resources
-- (fonts, XCMDs, sounds, pictures, icons, etc.).
Set lockMessages to true
Lock screen
-- Format source and destination stack names.
put (long name of this stack) into sourceStack
delete first word of sourceStack
delete first character of sourceStack
delete last character of sourceStack
put stackName into destStack
delete first word of destStack
delete first character of destStack
delete last character of destStack
```

Please circle 157 on reader service card.

```
-- Compare before & after lists to see what
-- to install and remove.
Put empty into cutList
Put empty into addList
Repeat with i=2 to (the number of items of l1)
  If item i of l1 is not in l2
    Then put item i of l1 & "," after cutList
End repeat
Repeat with i=2 to (the number of items of l2)
  If item i of l2 is not in l1
    Then put item i of l2 & "," after addList
End repeat
-- Perform the installations.
Repeat with i=1 to the number of items of addList
  -- Look up the name of the resource.
  Repeat with j=1 to the number of lines of -
    card field "Resources"
    Put empty into theResource
    If item 1 of line j of card field -
      "Resources" = item i of addList
    Then
      Put item 2 of line j of card field -
        "Resources" into theResource
    Exit repeat
  End if
End repeat
-- Invoke the resource mover to copy it to
-- the target stack.
put the value of word 1 of theResource -
into rType
put the value of word 2 of theResource -
into rName
ModResCopy sourceStack,destStack,rType,rName
End repeat
-- Perform the removals.
Repeat with i=1 to the number of items of cutList
  -- Look up the name of the resource.
  Repeat with j=1 to the number of lines of -
    card field "Resources"
    Put empty into theResource
    If item 1 of line j of card field -
      "Resources" = item i of cutList
    Then
      Put item 2 of line j of card field -
        "Resources" into theResource
    Exit repeat
  End if
End repeat
-- Invoke the resource deleter to cut it.
put the value of word 1 of theResource -
into rType
put the value of word 2 of theResource -
into rName
resDelete destStack,rName,rType
End repeat
Set lockMessages to false
Unlock screen
End resrceUpdate
```

```
On scriptUpdate stackName,l1,l2
-- This handler installs and removes scripts
-- (actually, handlers for special messages).
Set lockMessages to true
Lock screen
-- Compare before & after lists to see what
-- to install and remove.
Put empty into cutList
Put empty into addList
```

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OPTICS

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"LabVIEW is the software system we needed to complement our instruments." Scott Jordan includes LabVIEW with a Newport Optical Power Meter and a Newport Programmable Controller in a laser control system marketed by Newport Corporation.



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PHYSICS

The University of Texas
at Austin

"We initially set up our system on a MicroVAX. It took 6 months. With LabVIEW and a Macintosh II, we got it working in a couple of weeks." Azucena Overman, graduate student in the Physics Department, researches the chemical properties of surfaces. In her research, LabVIEW controls GPIB instruments and graphs the data collected.



CIVIL ENGINEERING

Stanford University

"LabVIEW is the most flexible data acquisition software I've ever seen—it's also a bit of fun." Dr. Steven Monismith of the Civil Engineering Department uses an experimental pond to research double diffusive systems. LabVIEW and an NB-MIO-16 board measure signals from temperature and conductivity probes in the pond, and control a motor that varies the depth of the probes.



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CARD TRICKS

```

-- Perform the removals.
Repeat with i=1 to the number of items of cutList
-- Look up the name of the script.
Repeat with j=1 to the number of lines of -
card field "Scripts"
Put empty into theScript
If item 1 of line j of card field "Scripts" -
= item i of cutList
Then
Put item 2 of line j of card field -
"Scripts" into theScript
Exit repeat
End if
End repeat
If theScript is not empty
Then
-- Go to the target stack and cut it.
Push this card
Go to card 2
Push this card
Go to stackName
Put the script of this stack into -
theStackScript
Put false into inHandler
Put empty into newStackScript
Repeat with i=1 to the number of lines of -
theStackScript
Put line i of theStackScript into theLine
If not inHandler
Then
If (word 1 of theLine is "On" -
or word 1 of theLine is "Function") -
and word 2 of theLine is in theScript
Then
Put true into inHandler
Else
Put theLine & return after -
newStackScript
End if
Else
If word 1 of theLine is "End" -
and word 2 of theLine is in theScript
Then
Put false into inHandler
End if
End if
End repeat
Set the script of this stack to -
newStackScript
Pop card
Pop card
End if
End repeat
Set lockMessages to false
Unlock screen
End scriptUpdate

```

```

On buttonUpdate stackName,11,12
-- This handler installs and removes buttons
-- (including their scripts and properties,
-- but won't install icons; you'll need to
-- use rsrceUpdate for that).
Set lockMessages to true
Lock screen
-- Compare before & after lists to see what
-- to install and remove.
Put empty into cutList
Put empty into addList

```

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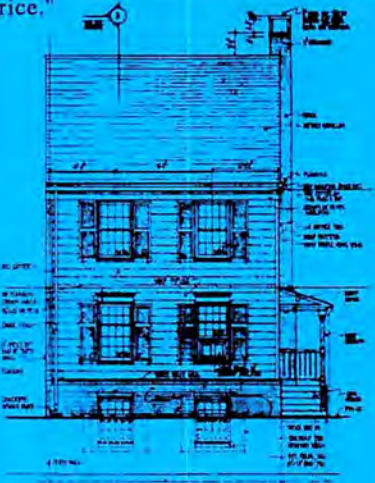
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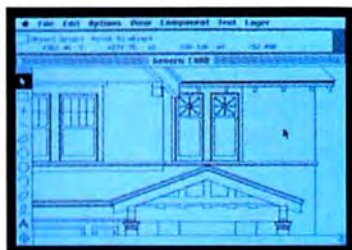
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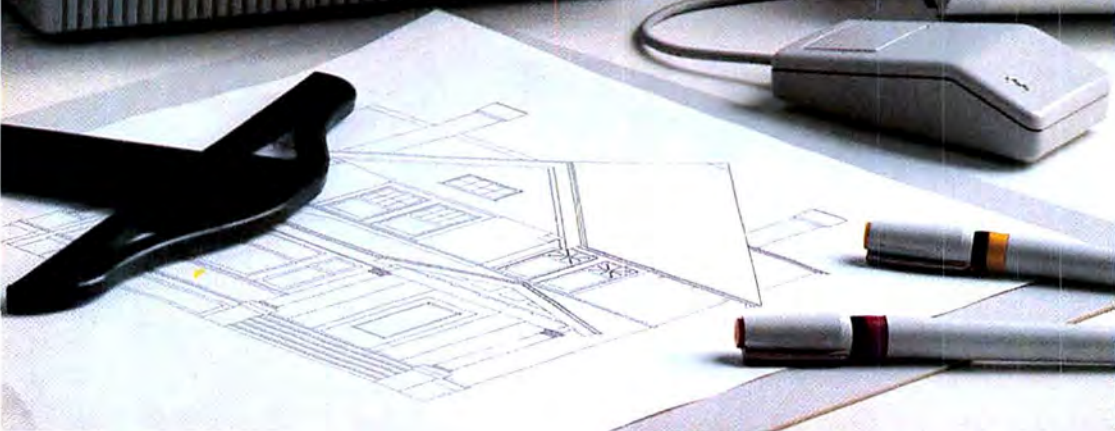
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Repeat with i=2 to (the number of items of l1)
  If item i of l1 is not in l2
    Then put item i of l1 & "," after cutList
End repeat
Repeat with i=2 to (the number of items of l2)
  If item i of l2 is not in l1
    Then put item i of l2 & "," after addList
End repeat
-- Perform the installations.
Repeat with i=1 to the number of items of addList
  -- Look up the name of the script.
  Repeat with j=1 to the number of lines of ~
    card field "Scripts"
    Put empty into theScript
    If item 1 of line j of card field "Scripts" ~
      = item i of addList
    Then
      Put item 2 of line j of card field ~
        "Scripts" into theScript
    Exit repeat
  End if
End repeat
-- Copy the script from card 2.
If theScript is not empty
Then
  Push this card
  Go to card 2
  Put empty into theHandler
  Put 0 into handlerStart
  Put the script of this card into ~
    theCardScript
  Repeat with i=1 to the number of lines of ~
    theCardScript
    Put line i of theCardScript into theLine
    If (word 1 of theLine is "On" ~
      or word 1 of theLine is "Function") ~
      and word 2 of theLine is in theScript
    Then
      Put i into handlerStart
    Exit repeat
  End if
End repeat
If handlerStart is not 0
Then
  Repeat with i=handlerStart to the number ~
    of lines of theCardScript
    Put line i of theCardScript into theLine
    If word 1 of theLine is "End" ~
      and word 2 of theLine is in theScript
    Then
      Put line i of theCardScript & return ~
        after theHandler
    Exit repeat
  Else
    Put line i of theCardScript & return ~
      after theHandler
  End if
End repeat
End if
-- Go to the target stack and paste it there.
Push this card
Go to stackName
put the script of this stack into ~
  theStackScript
put theHandler & return before ~
  theStackScript
set the script of this stack to ~
  theStackScript
Pop card
Pop card
End if
End repeat

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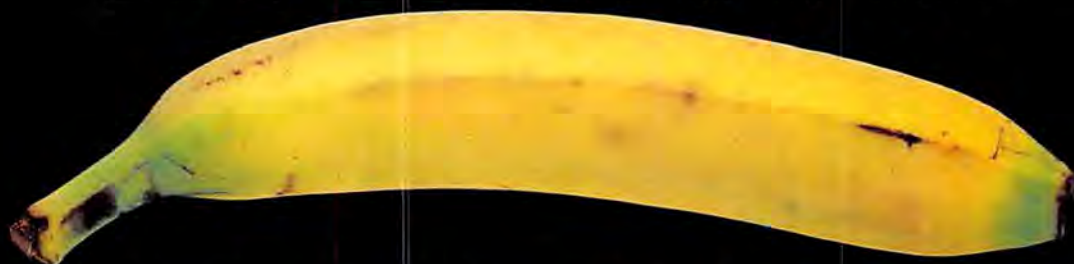
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CARD TRICKS

```

Repeat with i=2 to (the number of items of l1)
  If item i of l1 is not in l2
    Then put item i of l1 & "," after cutList
End repeat
Repeat with i=2 to (the number of items of l2)
  If item i of l2 is not in l1
    Then put item i of l2 & "," after addList
End repeat
-- Perform the installations.
Repeat with i=1 to the number of items of addList
  -- Look up the name of the button.
  Repeat with j=1 to the number of lines of ~
    card field "Buttons"
    Put empty into theButton
    If item 1 of line j of card field "Buttons" ~
      = item i of addList
    Then
      Put item 2 of line j of card field ~
        "Buttons" into theButton
      Exit repeat
    End if
  End repeat
  -- Copy the button from card 2.
  If theButton is not empty
  Then
    Push this card
    Go to card 2
    Select card button theButton
    DoMenu Copy Button
    -- Go to the target stack and paste it there.
    Push this card
    Go to stackName
    DoMenu Paste Button
    Pop card
    Pop card
  End if
End repeat
-- Perform the removals.
Repeat with i=1 to the number of items of cutList
  -- Look up the name of the button.
  Repeat with j=1 to the number of lines of ~
    card field "Buttons"
    Put empty into theButton
    If item 1 of line j of card field "Buttons" ~
      = item i of cutList
    Then
      Put item 2 of line j of card field ~
        "Buttons" into theButton
      Exit repeat
    End if
  End repeat
  If theButton is not empty
  Then
    -- Go to the target stack and cut it.
    Push this card
    Go to card 2
    Push this card
    Go to stackName
    Select card button theButton
    DoMenu Cut Button
    Pop card
    Pop card
  End if
End repeat
Set lockMessages to false
Unlock screen
Choose browse tool
End buttonUpdate

```

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EDITED BY LAURA JOHNSON AND VICTORIA JUAREZ

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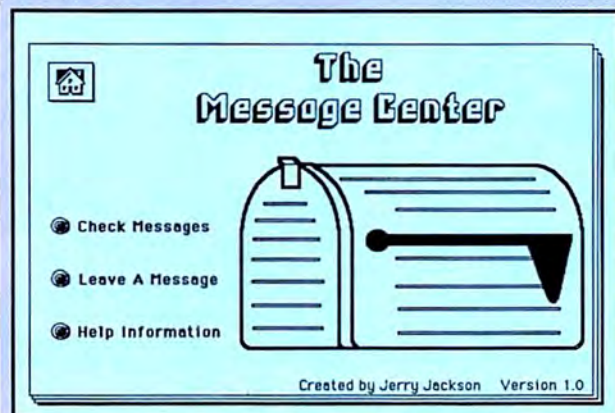
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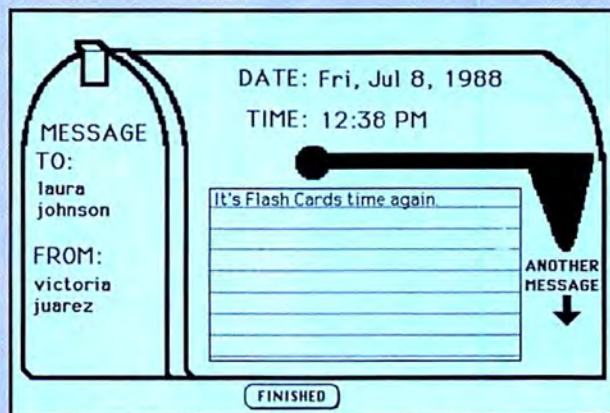
You can find the shareware and

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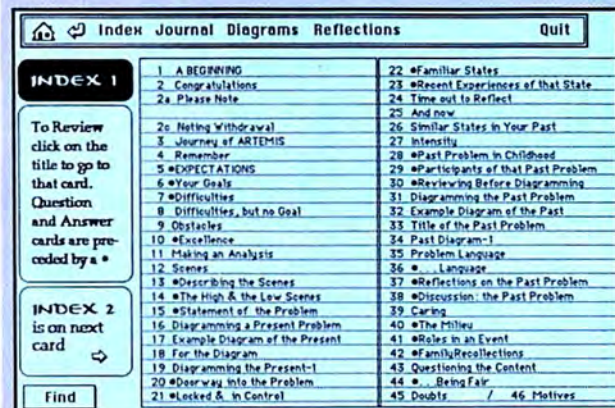


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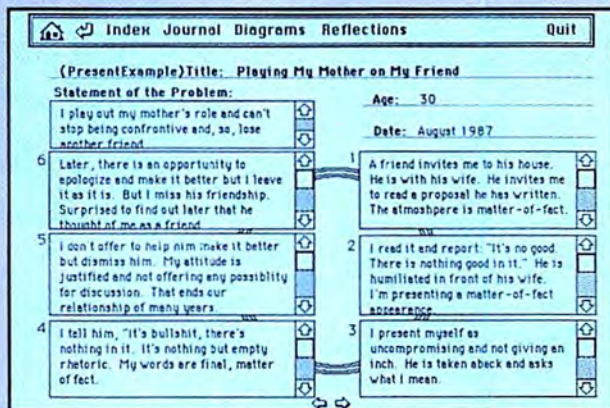


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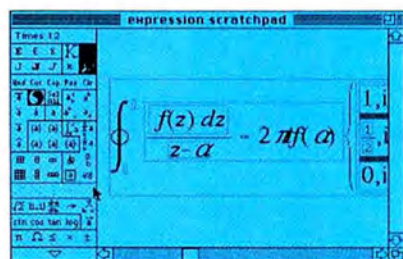
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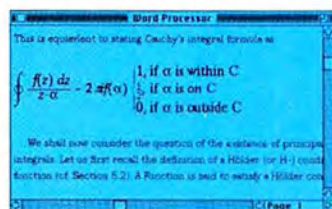


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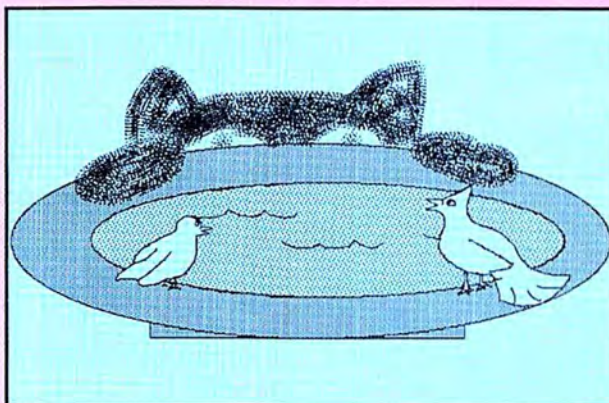
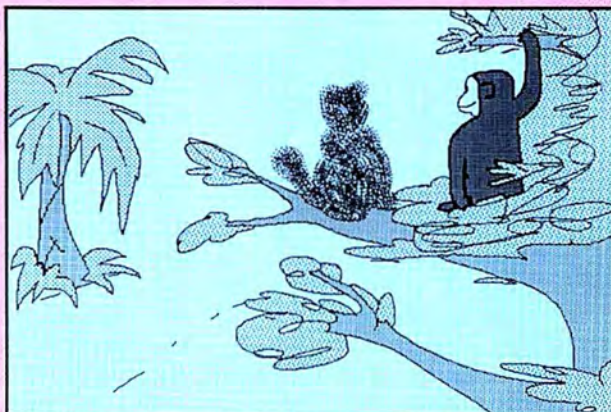
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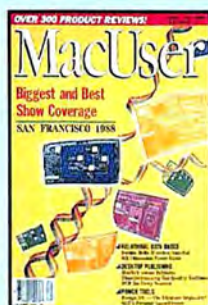


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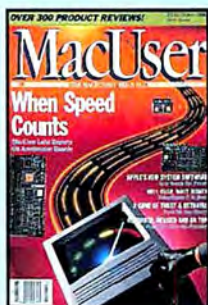
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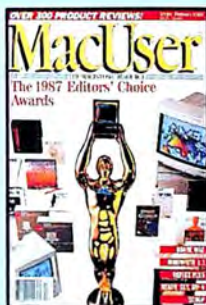
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April '88—Highlights of San Francisco Mac Expo '88; Double Helix II review/tutorial; 4th Dimension power guide; MacTex and Textures desktop publishing software compared; top-quality halftones with ThunderScan; OCR for every scanner; Design 2.0: the ultimate organizer?; GCC's Personal Laserprinter; and more.



March '88—When Speed Counts; Focal Point and Business Class the new commercial stacks; Microsoft Word 3.01; QUED/M and Stepping Out programs; Apple's new System software: worth the price?; VideoWorks II; See Mac Read; Trust and Betrayal: how's your aura?; and more.



February '88—The 1987 Editor's Choice Awards; dBase Mac; Mindwrite 1.1 adds more power; Ready, Set, Go! 4 will take over Pagemaker?; Reflex Plus; Scoop; ImageMaker's 35mm slide capabilities; picking a compiler; two modem-sharing solutions; Oriental graphics with MacCalligraphy; and more.



January '88—QuickKeys: using the mouse as an accessory. Plus: Why Canvas wins out over LaserPaint; MacSmarts and Instant Expert compared; Hypertext in 512K; Hypercard programming tutorial; Desktop Express e-mail; Macintosh Programmer's Workshop examined, Part I; making Postscript special effects work; and more.



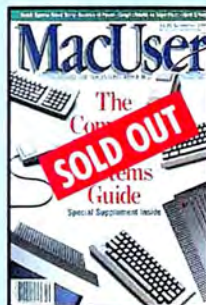
December '87—HyperCard: royal flush or bluff?; Trapeze 2.0; hard disk preventive care and cures; the arrival of Red Ryder 10.0; The Comic Strip Factory; feats of magic with Time Wand; Master Tracks Pro: the best Mac MIDI sequencer?; a guide to Castle Shadowgate game; report from the Seybold Desktop Publishing Conference; and more.



November '87—4th Dimension: the ultimate data base?; unlimited font and DA access with Suitcase; a roundup of new and updated accounting programs; supercharging your SE; personal organization made simple, with C.A.T.; how to leave notes for yourself, with Comment; professional CAD/CAM on the Mac; and more.



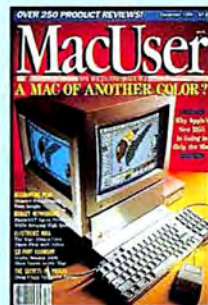
October '87—Laser Wars! Postscript printer free-for-all; Course Builder educational program developer; utilizing the full power of Excel; PageMaker 2.0; still the standard?; JustText Postscript desktop publishing program; Fontographer; GraphicWorks 1.1; Jam Factory and M music programs; and more.



September '87—Special Supplement: "The Complete MacUser Systems Guide" includes guide to configurations, systems guide directory, and more. Plus: Xpress; Doug Clapp's Word Tools; Douglas Adams on Word 3.0; GraphicWorks 1.1 and SuperPaint compared; recycling ImageWriter ribbons; and more.



March '87—Special section on new word processors reviews Laser Author, MindWrite, Word Handler, Word 3.0 and WriteNow; MacinTax tax preparation software; 5 time-saving printer buffers compared; 5 AI languages reviewed; Mac Pro Football; FREE program in Softstrip format; and more.



December '86—Why Apple's new IIGS is going to help the Macintosh; Accounting Plus; PhoneNET saves money without sacrificing quality; inBOX E-mail system; Studio Session adds more voices to the Mac; Doug Clapp on the secrets of Pascal; StatView 512+; Compiled ZBASIC; FREE programs in Softstrip format; and more.

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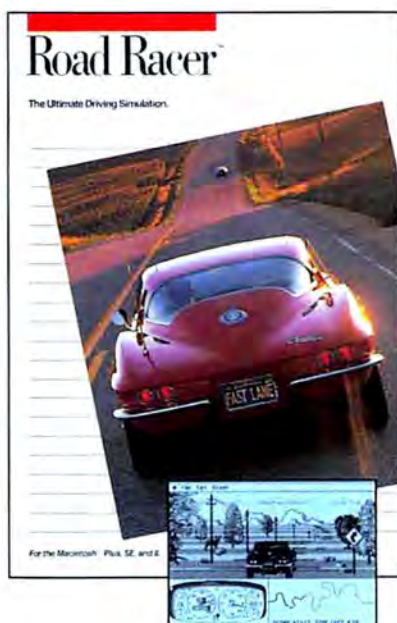
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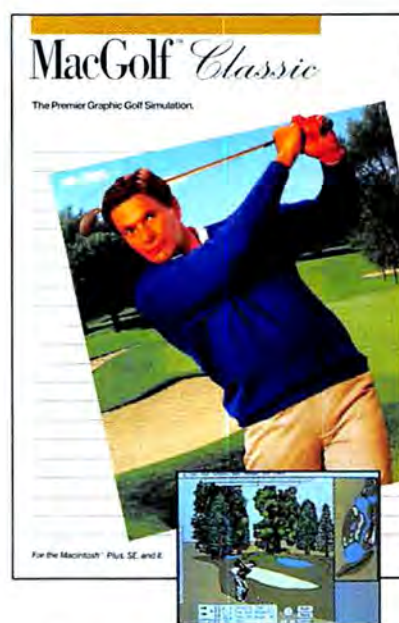
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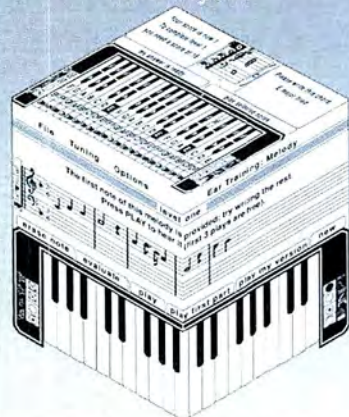
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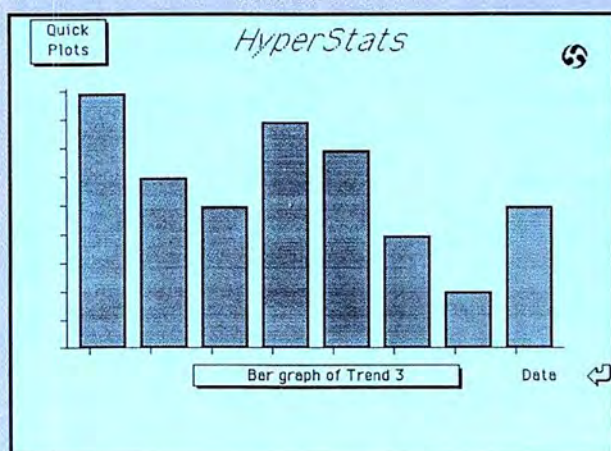
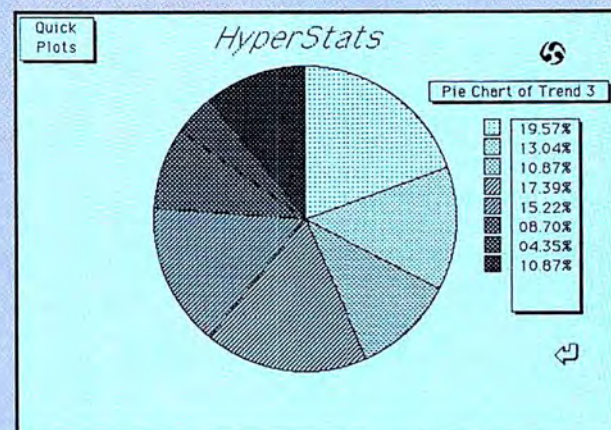
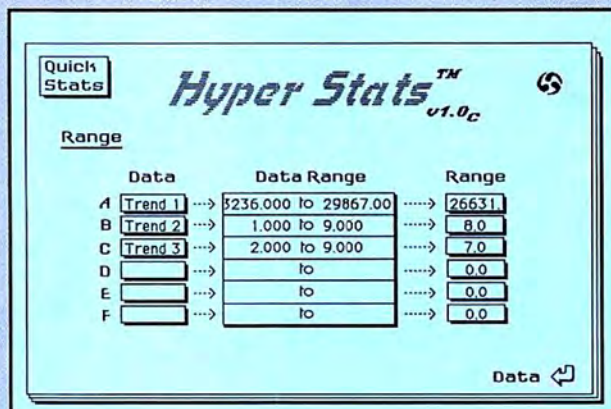
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F L A S H C A R D S

Stack for Stats

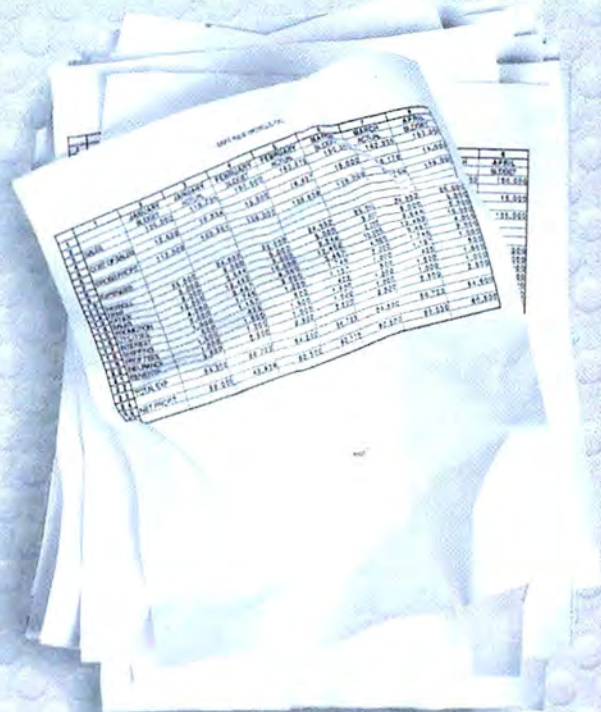
Statistical calculations are easy to do with this stack intended for students, researchers, and businesspeople.

Mean, standard deviation, and range are just three of the nine statistical tests included in HyperStats. It has a random-data series and plotting capabilities. For more information, contact Jason Hardi, 455 Bayside Road, Arcata, CA 95521; (707) 826-9637.



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Cricket Graph & Cricket Pict-O-Graph



The Fast Track To Dazzling Graphs & Charts When you're knee-deep in raw data and want to create colorful graphs and charts *fast*, rely on the graphing program more Macintosh owners turn to than any other—Cricket Graph.

Powerful Yet Easy Enter or import your data into a spreadsheet-like window, select one of the dozen different graph types, and you're done. Cricket Graph does all the work. It's powerful, yet easy. No wonder Cricket Graph was the winner of both *MacUser's* and *MacWorld's* top awards for business graphics software.

Pict-O-Graph—Perfect For Publishing And Presenting

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Getting to Know Poe

Edgar Allan Poe's short story "The Masque of the Red Death," adapted for HyperText by Michael Cady and Margaret Harris, provides a literature lesson for high-school and college students. The stack features explanations of Poe's writing style and use of symbols. It's available for \$29.95 from microWrite, Route 4, P.O. Box 4124, LaPlata, MD 20646; (301) 868-3335.

THE MASQUE OF THE RED DEATH
 BY EDGAR ALLAN POE

The Red Death had long devastated the country. No pestilence had ever been so fatal, or so hideous. Blood was its avatar and its seal--the redness and the horror of blood. There were sharp pains, and sudden dizziness, and then profuse bleeding at the pores, with dissolution. The scarlet stains upon the body and especially upon the face of the victim were the pest ban which shut him out from the aid and from the sympathy of his fellow men. And the whole seizure, progress, and termination of the disease were the incidents of half an hour.

Click the box for Information about:

Page 1

CONTRAST

Poe uses CONTRAST in this section. He uses many happy words to give the reader the idea that the people inside are having fun. This CONTRASTS (shows difference) with the little hint Poe gives about what is happening outside.

Story

Click here for happy

Click here for sad

But the Prince Prospero was happy and dauntless and sagacious. When his dominions were half depopulated, he summoned to his presence a thousand hale and light-hearted friends from among the knights and dames of his court and with these retired to the deep seclusion of one of his castellated abbeys. This was an extensive and magnificent structure, the creation of the Prince's own eccentric yet august taste. A strong and lofty wall girdled it in. This wall had gates of iron. The courtiers, having entered, brought furnaces and masonry hammers and weld the bolts. They resolved to leave means neither of ingress nor egress to the sudden impulses of despair or of frenzy from within. The abbey was amply provisioned with such precautions the courtiers might bid defiance to contagion. The external world could take care of itself. In the meantime it was folly to grieve, or to think.

Story

Click here for happy

Click here for sad

NOTE THESE UNHAPPY WORDS:

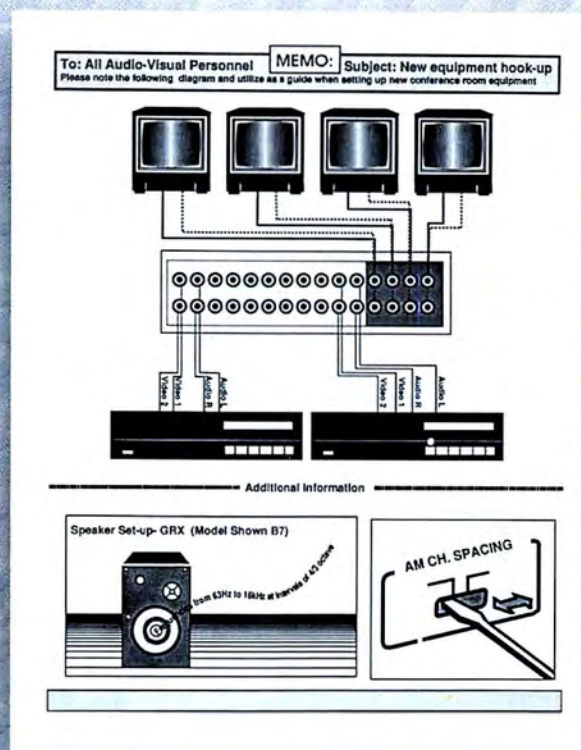
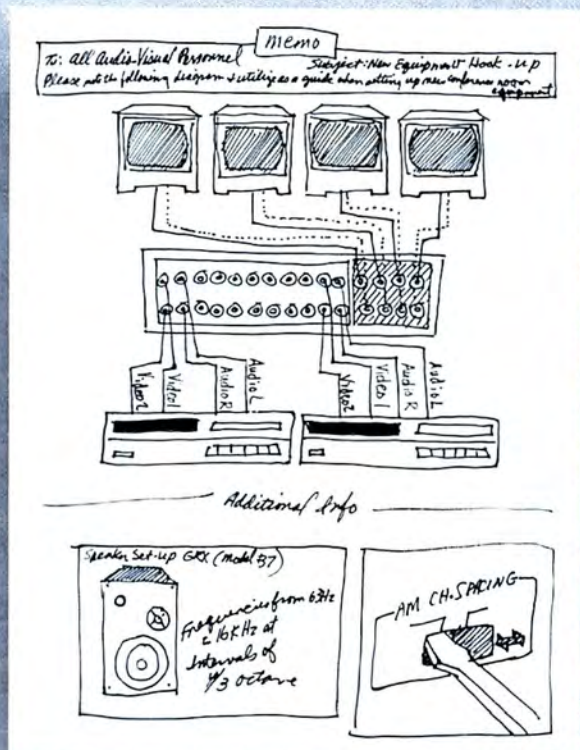
- DESPAIR or of frenzy
- external world COULD TAKE CARE OF ITSELF
- it was folly to GRIEVE, or to think

NOTE THESE HAPPY WORDS:

- PRINCE PROSPERO
- HAPPY
- DAUNTLESS
- SAGACIOUS
- HALE & LIGHT-HEARTED FRIENDS
- MAGNIFICENT

Story

Why You Need Cricket Draw



Not For Professionals Only When you need to create good-looking professional quality graphics you don't have to struggle with a program designed for professional artists. Cricket Draw is the PostScript drawing program for everyone.

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"I switched to Redux!"
—Bob LeVitus, Macazine

REDUX

*the hard disk backup
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three great Macintosh II screen utilities

SCREEN GEMS

Color Desk by Paul Mercer

personalizes your screen by displaying your choice of a background picture (any PICT file) in place of the gray desktop.

Dimmer by Chris Derossi

dims your screen while you're not using it (other utilities just blank the screen) to prevent burn-in. Works with multiple screens. Specify delay before dimming (1-120 min) and dim level (0%-100%).

Switch-A-Roo by Bill Steinberg

quickly switches between 2 user-defined screen modes without bringing up the Control Panel "Monitors" device. Supports multiple monitors.

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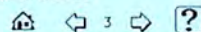
F L A S H C A R D S

On the Newsstand

News, features, editorials, hints, tips, and scripting ideas are all covered in *Stackazine*, a monthly magazine on-disk. *Stackazine* also reviews public-domain and shareware stacks and includes some of the stacks themselves. The subscription rate is \$47 a year, and it's available from *Stackazine*, 526 Jordan, P.O. Box 9, Bolingbrook, IL 60439.

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Calendar of Events
Feature Story - HyperCard 1.2
Top of the Stack
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MacRodney - HyperEducation
Script-Ease - Your Wish is My Command
Collectibles
HyperPower
What's New
Glossary
Free Stackware Offer



For those of you who aren't proficient at reading International Flag Code, the above sequence of flags spells out HyperCard 1.2, and that's the way Apple announced to the world that version 1.2 is finished. Bill Atkinson showed off his latest creation the last week of April, at the Spring Developers' Conference 88 in California to many impressed admirers. HyperCard 1.2 is already in the hands of developers and should be to retail distributors soon, the distributors we talked with said mid-June.

Let's take a look at what the new version will bring you. As you open HyperCard 1.2 you won't notice anything very different. As you begin to experiment with it, especially with scripting, you will begin to

Feature Story



Modern Romance

Photographer Tom Upton and his wife Cate Lush created this stack for a thoroughly modern wedding guest register. Guests could also input words of wisdom for the newlyweds. The final screen is the couple about to kiss to the wedding march tune.

Hello. What's your name?

Lisa Orsini

To answer, type your name and then press the return key

Tom and Cate's thoroughly modern guest book.

LISA

Do you have any sage advice, notorious recipes, or true life stories of your wedding night to share with the newlyweds?

If so, just start typing. When you're done, point at the heart with the mouse, and click on the button.

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FoxBASE+/Mac: The Fastest, Most Powerful Macintosh Database System

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Speed To Burn.

FoxBASE+/Mac gives you the power and performance you expect from Fox. In fact, FoxBASE+/Mac is by far the fastest database system available for the Mac—up to 200 times faster!

Vast Program Library.

FoxBASE+/Mac is completely compatible with the industry standard dBASE language—so *hundreds of thousands* of dBASE programs will run perfectly on your Mac—*without changing a single line of code!*

View Window.

The View Window is the master control panel for FoxBASE+/Mac's graphical, non-programming interface. Use it to open and close files, set up indexes, establish relations, access BROWSE, and even to modify database structures!

BROWSE.

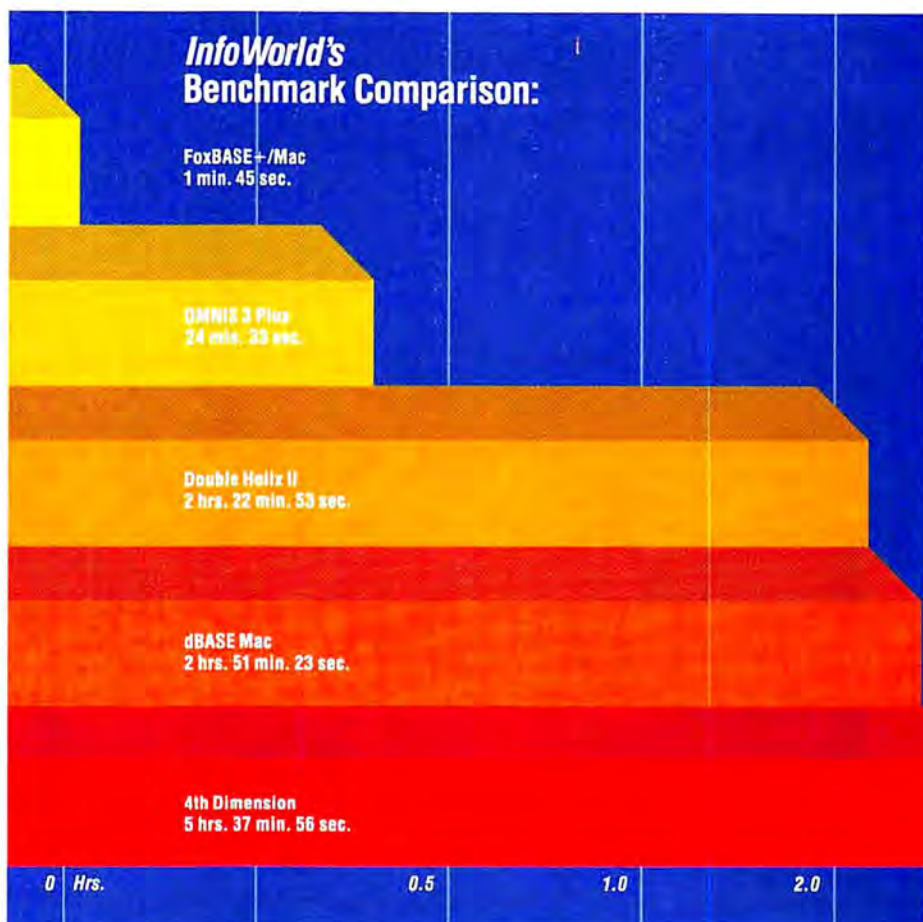
FoxBASE+/Mac's BROWSE feature brings new convenience and power to database display and editing! You're in complete control—BROWSE lets you dynamically adjust the size and order of fields displayed, add or delete records, and split the window to show different database sections side-by-side. Together, BROWSE and View Windows *eliminate* the need to write programs for common database operations!

Integrated Graphics.

Copy and paste graphs, charts, diagrams and even pictures into your database—*instantly!* FoxBASE+/Mac gives you the power to display these graphics, or merge them into reports and documents!

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InfoWorld's Benchmark Comparison:



FoxBASE+/Mac blows away the competition in InfoWorld's speed benchmark tests!

Command Window.

FoxBASE+/Mac's Command Window gives both experienced developers and novice users ultra-convenient access to the dBASE command language—just type a command into the Command Window, and it's executed!

Join The FoxBASE+/Mac Pack!

At just \$395, FoxBASE+/Mac is a bargain. You can't afford to be without it! Call (419) 874-0162 Ext. 980 for more information about FoxBASE+/Mac. Or visit your local software retailer.



"Editor's Choice"—1987 & 1988!

FoxBASE+/Mac is part of the award-winning family of products from Fox Software. For two years in a row, FoxBASE+ has been given the prestigious Editor's Choice award by *PC Magazine*, and scored an impressive 9.2 out of a possible 10 when tested by InfoWorld's Review Board!

Fox Software

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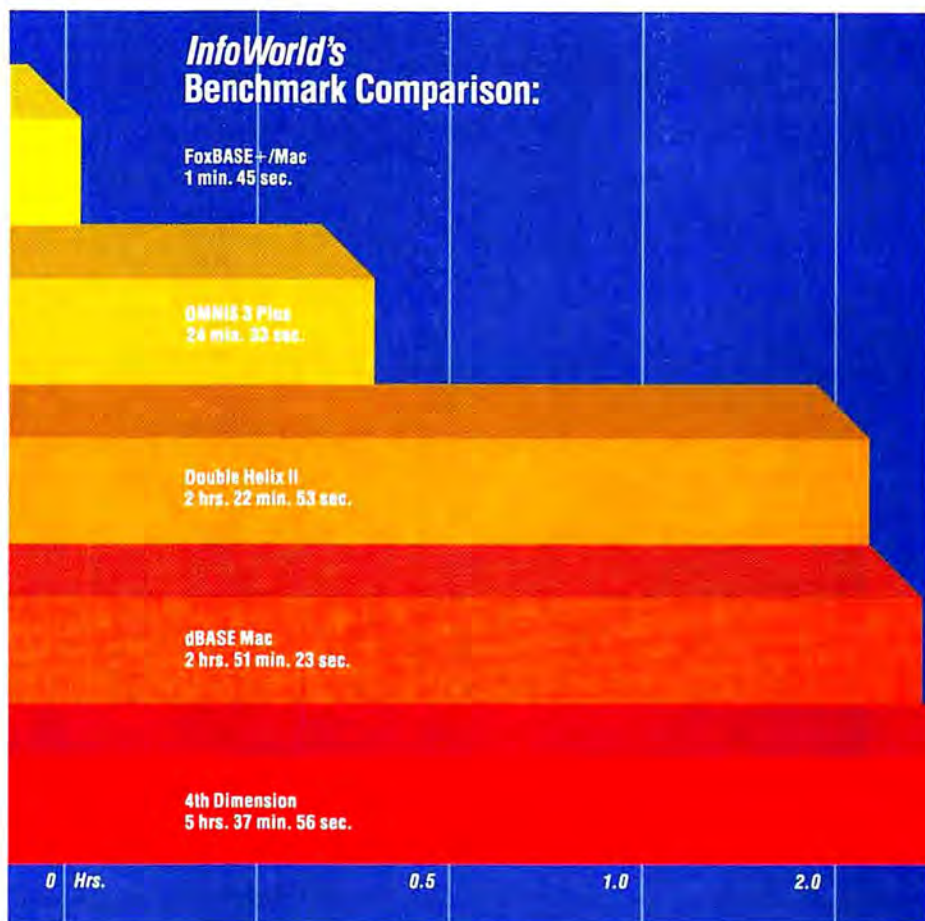
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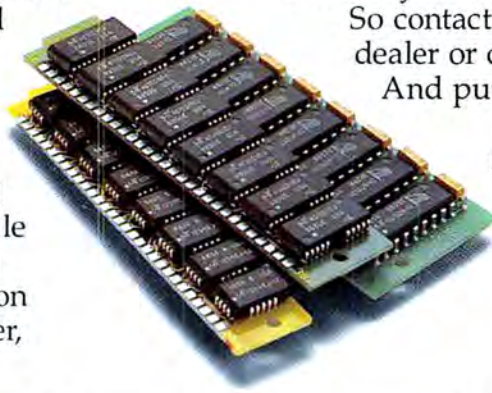
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A/UX ILIARY INFORMATION

Beauty and the Beast — the Mac married to UNIX. The Macintosh operating system has become famous largely because of its pioneering achievements in interfacing humans with computers. UNIX is a powerful multiuser, multitasking operating system that originally ran only on mini-computers. UNIX was written by and for programmers, and where the Mac is famous for ease of use, UNIX is equally renowned for being obscure and puzzling.

A/UX, Apple's implementation of UNIX, has the potential to combine the power of UNIX with the sophisti-

cated interface of the Mac. Its initial release created a demand for the Macintosh II in traditional scientific and engineering markets where UNIX has long been a standard. As A/UX evolves and programs become available that better use the Mac interface, both the UNIX and Mac worlds may change in very exciting ways.

"A/UXiliary Information" will keep you informed about new products and developments in the A/UX community. As the role of A/UX evolves, so will our coverage, enabling the curious and the committed to explore this newest direction in the life of the Mac.

Apple News from UniForum_DC

BY JAMES FINN

So you bought A/UX and discovered that getting started is a bit more complicated than you'd anticipated? Help is here. Apple has an A/UX Hotline to provide telephone support for A/UX customers. Apple is shipping a support package, including two hours of free Hotline time, with every A/UX system purchased between September 1 and December 31 of this year. If you've bought A/UX since February, you can also get the support package free if you apply before December 31.

The package is intended to help you get your A/UX installation operational with a minimum of fuss. After your free support runs out, Apple will be happy to sell you five- and fifteen-hour Hotline subscriptions.

Apple has announced that it will provide X-Window, release 11, version 2, for A/UX. X-Window is a windowing environment that is being widely endorsed as a standard in the UNIX community. X-Window provides a simple window manager and a graphics toolkit. Like Sun Microsystems' NeWS, X-Window is designed to work in a networked environment and supports distributed applications.

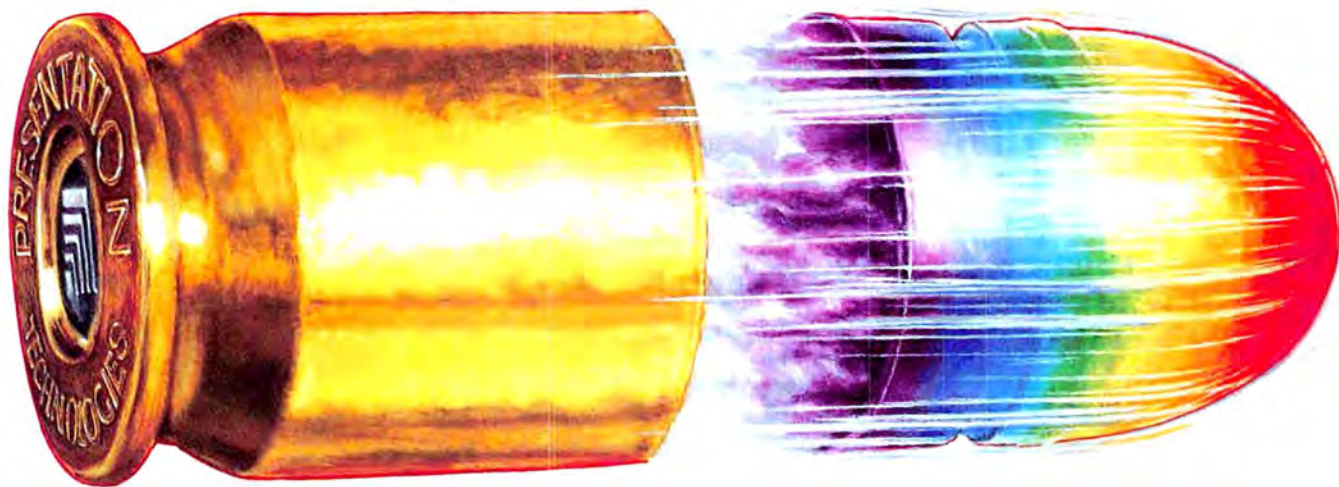
Apple's X-Window kit includes X-Window itself, display managers, and

documentation for both users and developers.

Apple also announced that A/UX will support POSIX, the Institute of Electrical and Electronics Engineers (IEEE) standard for portable UNIX applications. This move allows A/UX to meet federal government requirements in the UNIX market. The next version of A/UX will support draft 12 of POSIX, and Apple will continue to comply with POSIX as the standard matures.



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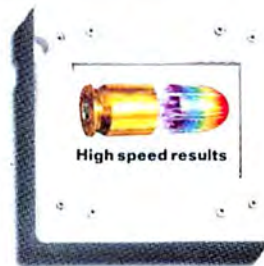
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Upping Your Image

BY JAMES FINN

Pixar has announced an interface between its Pixar II image computer and the Macintosh II running A/UX. The interface lets the Mac function as host to the Pixar machine.

Pixar began as a spin-off from Lucasfilm, which pioneered computer graphics research for films such as *Star Trek II: The Wrath of Khan* and *The Return of the Jedi*. The company was later acquired by Steven Jobs.

The Pixar II is designed to process and render quickly large quantities of three-dimensional data. Its primary applications are in the areas of scientific visualization, remote sensing and mapping, medical imaging, design

and animation, and the graphic arts.

Pixar views image processing as distinct from traditional computer graphics. Normally, graphics workstations generate images from descriptions in terms of geometric figures such as polygons. The Pixar II works with volume data that may have no geometric origin. For example, a Pixar II can be used to turn data from a computed-tomography scan into a three-dimensional image of a patient's body.

The Pixar II works with 48-bit color pixels, which are divided into four 12-bit "channels" — red, blue, green, and alpha. The alpha channel can store additional information about

each pixel such as pixel transparency.

The computer can be configured to work with from 12 to 108 megabytes of image memory. Its CPU, called "Chap" for Channel Processor, is actually a multiprocessor design in which four processors work in parallel on the four channels.

The Pixar II functions principally as a "pixel-cruncher" and requires a host computer to support applications and the user interface. This is where the Mac comes in. The interface consists of a SCSI board for the Pixar II that connects to the Mac's SCSI port. The Macintosh platform will enable Pixar to create a friendly front end for its software.

All of Pixar's imaging software has been moved to A/UX. There is a C compiler for ANSI C with extensions to support the parallel Chap processor. Software libraries include routines for image processing and display. Application toolkits support volume, terrain, and surface rendering. Additionally, shell commands provide interactive access without programming to the most common library functions.

A side note: Pixar reports successfully porting all 250,000 lines of its software to A/UX in about two weeks. Apple has been severely criticized because its initial release of A/UX does not support much of the Mac Toolbox, but it is a testimony to the solidity of A/UX that Pixar was able to move a large software base to it quickly and without problems.

The Pixar II with 12 megabytes of image memory, the SCSI board, and a 19-inch color monitor cost \$35,500. The Mac II needs A/UX, 4 megabytes of memory, 300 megabytes of disk storage (no, that isn't a misprint — see our June '88 MacUser Labs report on "Big Hard Disks"), a monitor, and a tape drive. The combined price should be under \$50,000, making this both the least-expensive and the friendliest approach to Pixar power. Contact: Pixar, 3240 Kerner Boulevard, San Rafael, CA 94901; (415) 258-8100.

The Pixar II image computer with its new partner, the Macintosh II. The Pixar machine is showing a rendering of a mechanical part, with colors representing levels of stress.



© 1988 Pixar.

All the NeWS That Fits to PostScript

BY JAMES FINN

Time for the \$225 question. Where was the first third-party software for A/UX developed? If you answered San Francisco's historic Haight-Ashbury district, or even if you didn't, you can call (408) 266-4783 (yes, I know that's not in San Francisco) and, for only \$225, order your copy of MacNews from the Grasshopper Group.

Operating from a garage in the Haight, the Grasshopper Group has ported Sun Microsystems' NeWS (Network-extensible Windowing System) to the Mac, providing A/UX with its first windowing system.

MacNews (which we mentioned briefly in our September '88 issue) has several intriguing characteristics. All screen display is done in PostScript, so windows can be scaled and rotated. You can also use *psview*, MacNews' PostScript interpreter, to preview any PostScript documents before printing them. MacNews already supports PostScript color, and the Grasshopper Group will implement color display as soon as Apple provides color support in A/UX.

As its title suggests, MacNews is

All screen display is done in PostScript, so windows can be scaled and rotated.


designed to function well in a networked environment (specifically, a TCP/IP network, supported by A/UX.) With MacNews, you can run an application on one machine and send its screen display to another.

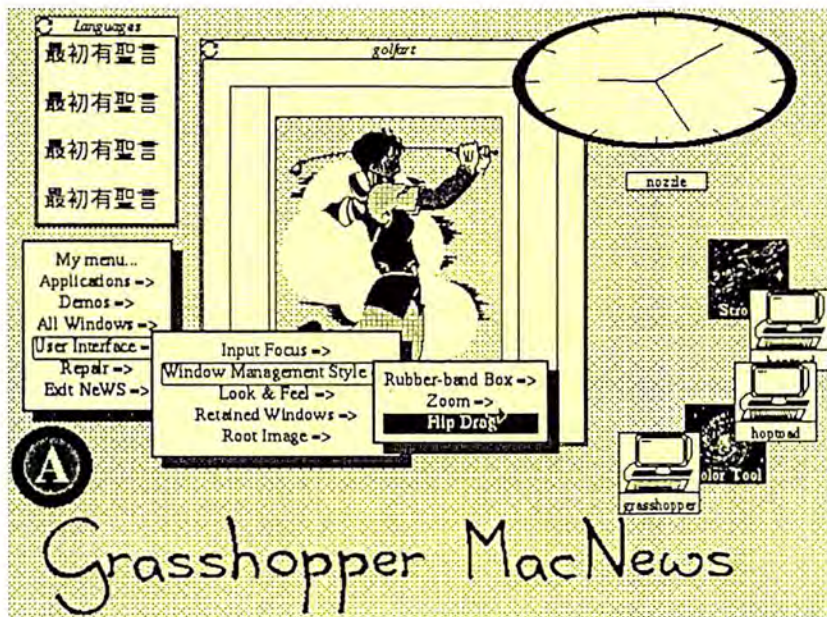
MacNews is also capable of supporting multiple window managers (all written in PostScript) concurrently. Grasshopper Group plans MacNews support for both X-Window and Open Look. Currently, MacNews is shipped with *LiteWindows*, an object-oriented window manager. The *pstern* program provides terminal emulation.

If that isn't enough, MacNews is distributed with the PostScript source for its user interface and the C language source for the application program interface. These can be modified or included in applications. Full source for *psview* and *pstern* is also included.

To run MacNews, you need A/UX and a minimum of 4 megabytes of RAM, though 5 to 8 megabytes will boost performance. You also will need 5 megabytes of disk storage, and if you want to use MacNews over a network, you must have Apple's Ethernet card.

The Grasshopper Group was founded by its three partners. Hugh Daniel was a member of Project Xanadu and has also been active in telecommunications (he ran the WELL for more than a year). John Gilmore claims the honor of having been Sun's first software employee. Keith Henson founded the L-5 Society. They all feel that NeWS is "the best window system in existence."

Contact: Grasshopper Group, 212 Clayton Street, San Francisco, CA 94117; (408) 266-4783. 



A MacNews screen. The clock is displayed in an oval-shaped window.

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MINIFINDERS

Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the *MacUser* editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. **Red names indicate this month's additions.** The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). If a product has been reviewed or Quick Clicked in *MacUser*, the date of the review is shown. Eddy (Editor's Choice) Award winners are noted with a ★ and the year in which they won prizes for an excellent product. Next time you have to find products you can count on, count on *MacUser*!

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BUSINESS ACCOUNTING

- Accountant, Inc.** integrates accounts payable, accounts receivable, general ledger, and inventory modules. Prints checks, purchase orders, invoices, customized reports. Bare-bones accounting system limited in size and scope, but ease of use and integration make it suitable for small businesses. Requires 512K+. Version 2.0. \$299. SoftSync, 162 Madison Ave., New York, NY 10016. NCP (Oct '87)
- Back to Basics Accounting** is a powerful double-entry accounting software package for the small business user with GL, AR, and AP modules. Exhaustive manual with numerous examples. Report capabilities are excellent. \$199. Peachtree, 4355 Shackleford Rd., Norcross, GA 30093. NCP (May '87)
- BPI General Accounting** is an easy-to-use system. Six journals, AR, AP, Payroll, and GL on one disk. Offset amounts automatically post to ledgers. Up to 8000 accounts. Detailed



records, wide range of reports. Switcher and HFS compatible. \$249. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78746. NCP (Aug '86)

Insight is a high-powered accounting program for the small-to-**\$\$\$** medium-sized business. Modules include Accounts Receivable, Payables, and General Ledger; others are in the works. Requires 512K and hard disk. \$595. Layered, 529 Main St., Boston, MA 02129. NCP (Dec '86) ★'86 Eddy

Rags to Riches integrated accounting modules (General Ledger **\$\$\$** and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Detailed, flexible report options. Very easy to use, but it can be confusing with several windows on-screen. Requires 512K+ and printer. \$199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Dec '85)

Rags to Riches Professional Billing tracks and bills professional services. Batches activities for individual timekeepers. Use as standalone, or integrate with R to R modules. Requires 512K+, printer. \$399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Feb '87)

Simply Accounting has six ledgers and eight journals to handle the needs of most small-to-medium sized businesses. Better Mac interface than most accounting packages. Unfortunately, payroll tax labels can't be modified, which forces you to subscribe to Bedford's yearly update service. Version 1.03. Requires 1 megabyte. Mac II and MultiFinder friendly. \$349. Bedford Software, 15311 Northeast 90th St., Redmond, WA 98052. NCP (Sept '88)

Strictly Business General Ledger features clear, well-outlined set-up procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each, and customized reports. Program print spools. Requires 512K+, printer and external drive. \$395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. NCP (Dec '85) ★'85 Eddy

Timeslips III tracks billing and expense information for people who **\$\$\$** charge by the hour. DA turns the clock on and automatically bills a client when a session is over. Version 1.06. Requires 512K and two disk drives. Mac II and MultiFinder friendly. \$199.95. North Edge Software, 239 Western Ave., Essex, MA 01929. NCP (Sept '88)

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a **\$\$\$** good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. Will work on 128K. \$149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar '87)


Easy Checks puts your check register (or credit card records or any other simple financial account) into a desk accessory. Creating formats is rough, can't save reports to disk and there's no LaserWriter support. Requires 512K+. \$44.95. PAR Software, P.O. Box 1089, Vancouver, WA 98666. NCP (Apr '88)

MacInTax is an excellent tool for preparing tax forms. Intuitive, **\$\$\$** easy-to-use. Accepts data from leading personal finance programs. Good built-in help. Liberal upgrade policy for current owners. California forms set also available. \$119 federal; \$65 California. SoftView, 4820 Adohr Lane, Suite F, Camarillo, CA 93010. NCP (Mar '87) ★'86 Eddy

MacMoney is a financial manager that uses information gleaned from your checks and deposit slips. Produces a variety of reports and graphs. Version 3.1 reviewed. Requires 512KE and printer. \$119.95. Survivor Software, 11222 La Cienega Blvd., Inglewood, CA 90304. NCP (July '88) ★'86 Eddy


MINIFINDERS





Quicken helps you write checks, then keeps a ledger showing you  where all of your money goes. Tax information is automatically generated. Version 1.0. Requires 512K and printer. \$49.95. Intuit, 540 University Ave., Palo Alto, CA 94301. NCP (Nov '88)


Wall Street Investor spots stock market trends. Downloads information from an electronic service. Good charting ability. Previously known as Market Pro. Version 2.1. Requires 1 megabyte, two 800K drives or hard disk, and an I.P. Sharp account. \$495. Pro Plus Software, 2150 East Brown Road, Mesa, AZ 85203. NCP (Oct '88)


DATABASES


C.A.T. is a dedicated relational database for managing contacts,  activities and time. Links between types of data make it easy to keep track of important people and events. \$399.95. Chang Laboratories, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Nov '87)


dBASE Mac is a relational DBMS that includes a structured programming language to develop stand-alone applications.  Palette icons as alternatives to menu commands will help novice users. Requires 1 megabyte +. \$495. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. NCP (Feb '88)


Double Helix II is a powerful database that supports a multiuser  environment with an upgrade. Uses an icon-based development system for easy creation of databases. \$595, single-user version. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Apr '88)


File is a flexible data manager. Creates files for a variety of data,  including simple graphics. Files are created in simple row/column format, but reports and forms are easily customized. \$195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP


FileMaker Plus retains features of FileMaker and reads FileMaker  data, also displays up to eight files, uses "lookup" to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. Requires 512K+. \$295. Nashoba Systems, 1157 Triton Dr., Foster City, CA 94404. NCP (Nov '86) ★'86 Eddy

4th Dimension is a versatile tool that creates stand-alone relational  databases. Design and layout environments allow easy linking of information. Robust. Pascal-like procedure language. \$695. Acius, 20300 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Nov '87) ★'87 Eddy


FoxBASE + /Mac is a relational database that can read unmodified  dBASE III PLUS applications created in the MS-DOS world. Amazingly fast. Good implementation of dBASE on the Mac. Version 1.0. Requires 1 megabyte. Mac II and MultiFinder friendly. \$395. Fox Software, Inc., 118 W. South Boundary, Perrysburg, OH 43551. NCP (Sept '88)


MacDeweyI is a cataloging program featuring the Dewey Decimal  Classification system. Uses predefined fill-in-the-blank fields to create catalog cards. Suffers from bugs in search routines and the inability to distinguish first names. Not for professionals; home libraries might benefit. Version 2.5. \$79.95. Mousetrap Software, 336 Coleman Dr., Monroeville, PA 15146. NCP (Nov '87)


Omnis 3 is a power database, featuring concurrent-multiple-file  management. Can handle 24 files, 12 at a time, and is fully relational. Create custom environments, including user-defined menus, commands, and dialogs. \$495. Blythe, 2929 Campus Dr., San Mateo, CA 94403. NCP (Mar '86)


OverVUE is a power-packed relational database that has extensive  sorting, summarizing, and report generation capacity. Has macros, and a charting function. Good manual. It can exchange files with a very wide variety of other programs (in-


cluding IBM software). \$295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. NCP (Nov '85) ★'85 Eddy

Professional Bibliographic System is a specialized database for  storing and retrieving bibliographies. Redesigned templates (20) simplify creation. Version 2.6 offers improved speed, flexible formatting. \$295. Personal Bibliographic Software, Box 4250, Ann Arbor, MI 48106. CP (Feb '87)


Record Holder Plus is a flexible, easy-to-use, form-oriented data  manager. Setup is particularly simple and the search features are powerful. \$69.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074. NCP (Apr '86) ★'87 Eddy


Reflex for the Mac is a flexible relational database. Excellent report  generator gives full control over appearance, style of output. Requires 512K+, second drive, or hard disk. \$99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec '86) ★'86 Eddy


Reflex Plus is a relational database with "smart" entry, and report  design, but no overall programming facility. Simple to set up, yet fast. Graphic capabilities are quite limited. Version 1.0 reviewed. \$279. Borland/Analytica, 4585 Scotts Valley Dr., Scotts Valley, CA 95066-9987. NCP (Feb '88)


Writer's Workshop maintains orderly records for writers. It can  track manuscripts, income, and publisher. Based on and includes Runtime Helix. \$99.95. Futuresoft System Designs, P.O. Box 132, New York, NY 10012. NCP (Apr '87)


NUMBER CRUNCHING


Data Desk Professional lets you visually look at statistics with  more ease than any comparable Macintosh program. Plots variables so you can analyze data to see what patterns develop. Version 2.0. Requires 1 megabyte and two 800K disk drives or hard disk. \$495. Odesta, 4084 Commercial Ave., Northbrook, IL 60062. NCP (Nov '88)


DesignScope is a construction kit for digital and analog circuits. Up  to 254 components can be utilized in a single circuit, and the equivalent of a dual-trace oscilloscope plots output in real-time. Good for testing circuitry without touching a breadboard. \$249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Nov '86)

Excel is THE power spreadsheet of the Mac. Has 256-column by  16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. 512K+ Mac and external drive required. \$395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Prem) ★'85 Eddy

MacCalc is a fast, competent, full-featured spreadsheet with im-  pressive built-in functions, font control, on-line help, ability to expand columns and rows, and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. A very flexible, pure spreadsheet. \$139. Bravo Technologies, c/o DPAS, P.O. Box T, Gilroy, CA 95021. NCP (Sept '86) ★'86 Eddy

MacSpin is a unique and powerful graphic data analysis program.  Handles multivariate data in a highly visual manner. Nothing else like it for any micro. \$199.95. D² Software, P.O. Box 9546, Austin, TX 78766-9546. CP (June '86) ★'87 Eddy

MacSQZ! compresses Excel files up to 88 percent of their actual  size. Good to free up disk space. Also contains password utility. MultiFinder hostile. Requires Excel. Version 1.01. \$79.95. Turner Hall Publishing, 10201 Torre Ave., Cupertino, CA 95014. NCP (Aug '88)

MathView Professional is an equation solver that combines two-  and three-dimensional plotting with routines for matrices, differential equations and integrals, complex numbers, and the like. Interface leaves a lot to be desired. Version 1.0. Requires 512KE and two disk drives. Mac II and MultiFinder



"This baby is loaded with extras..."

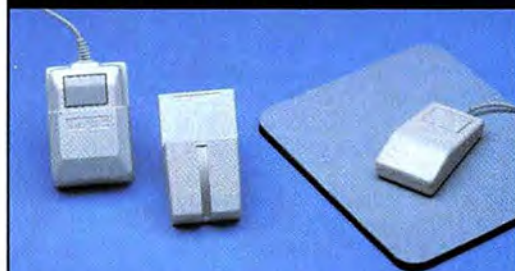
Kristi Coale,
MacUser magazine

Master Piece® Mac II, \$159.95

System Saver® SE, \$79.95



Apple® Security System, \$49.95



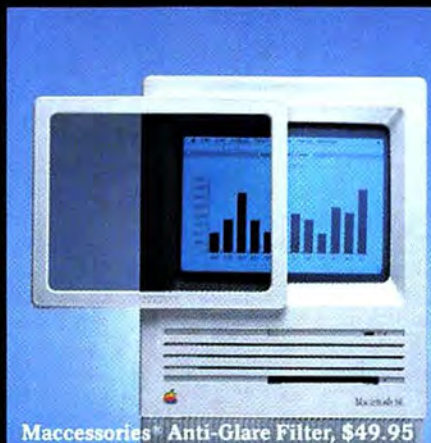
Mouseway, Mouse Pockets, \$9.95 ea.



Maccessories SuperBase™, \$49.95



Macintosh® II Stand and Cables, \$29.95 to \$49.95



Maccessories® Anti-Glare Filter, \$49.95



Universal Printer Stand, \$24.95



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friendly. \$249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Sept '88)

Microtemp Financial Calculators is a set of worksheets for Excel and Works that calculates common personal and small business financial problems. Includes cash flow, real estate and rate of return calculators. Version 1.0. \$79.95. Microtemp, P.O. Box 1208, Santa Rosa, CA 95402. NCP (Aug '88)

Mindsight is a professional level, decision-support, and business planning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and easy to use. Requires 512K+. \$249. Execucom Systems, P.O. Box 9758, Austin, TX 78766. CP (Dec '86)

Multiplan, the first Mac product from someone other than Apple, is beginning to show its age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. \$195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Mar '86)

Parameter Manager Plus is a data manager, incorporating integrated scheduling, statistics, and graphics. It has solid spreadsheet, calendar, and database functions and reports can be customized using other software. Parameter Manager can also import data from Excel or Lotus 1-2-3. \$395. Rebus, 2330-B Walsh Ave., Santa Clara, CA 95051. NCP (July '87)

StatView II is a remarkably complete data analysis package. Essential for any kind of descriptive, comparative, or multivariate statistics. Works in color on the Mac II. Version 1.01. Requires Mac II or SE equipped with 68020 and 68881 math coprocessor; two 800K disk drives or hard disk. \$495. Abacus Concepts, 1984 Bonita Avenue, Berkeley, CA 94704. NCP (Oct '88)

101 Macros for Excel offers all the power of macros without having to learn how to write them. Some gems include a macro to transpose rows and columns, and a search and replace macro. Requires Excel. \$69.95. Macropac International, 19855 Stevens Creek Blvd., Cupertino, CA 95014. NCP (July '88)

GRAPHICS & DESIGN

ArtWare: Borders enables you to customize your own clip art disk. The border collection is the best package in terms of quality of art. Other packages available. Requires a program that reads Encapsulated PostScript files. \$129. Artware Systems, 3741 Benson Dr., Raleigh, NC 27609. NCP (Aug '88)

Canvas is a Draw and Paint program that uses QuickDraw as its output language. Full of features, including free rotation and one-and-two-point perspective. Also has graphics macro commands, unusual in a program this inexpensive. \$295. Deneba, 7855 NW 12th St., Suite 202, Miami, FL 33126. NCP (Jan '88)

Chart can easily create area, bar, column, line, pie, scatter, and combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. \$125. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

Click & Clip offers seasonal graphics packages. Of the two quarterly editions released, the Spring '88 package is the better collection. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$39.95 per edition. Studio Advertising Art, P.O. Box 18432-52, Las Vegas, NV 89114. NCP (Aug '88)

ColorPrint allows you to print FullPaint, MacPaint, MacDraw, and MacDraft documents in color using the ImageWriter II or ImageWriter I. Paint files set up as overlays are read into ColorPrint, and the program controls proper positioning registration. \$29.95. I/O Design, P.O. Box 156, Exton, PA 19241. NCP (Mar '86)

Comic Strip Factory is an assembly program for creating comic strips. Includes a database of parts for various characters and backgrounds for panels. Good text editing in balloons. Can import and export in MacPaint format. \$69.95. Foundation Publishing, 5100 Eden Ave., Suite 307, Edina, MN 55436. NCP (Dec '87)

Cricket Draw is an object-oriented drawing program that will produce stunning, high-quality output. Designed to print on PostScript-compatible devices, such as the LaserWriter. Making shadows and flowing fountain effects is just a point and click away. \$295. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May '87)

Cricket Graph easily generates 12 graph types. Multiple windows can be displayed. Graph prints in up to eight colors with up to 16 patterns. Self-generating macro formatting. Switcher, HFS, LaserWriter, and plotter compatible. \$195. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (June '86) ★'86 Eddy

Crystal Paint creates an electronic kaleidoscope. It is MacPaint's Brush Mirrors gone wild in a small, simple, yet wonderful application. Does not work in color on Mac II. MultiFinder friendly. Requires 512K+. \$49.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Feb '88)

Curator catalogs your art and graphics so it's easy to see what's what and where it is. Supports PICT, TIFF, EPSF, PostScript, MacPaint, and more. Changes creator types. Requires 512K and an 800K drive. \$139.95. Solutions International, 29 Main St., Montpelier, VT 05602. NCP (Sept '88)

DeskPaint is a full-blown paint program as a desk accessory. Allows you to spruce up a graphic while in another application. Imports and exports MacPaint and TIFF images. Great for DTP, but not enough features to rival the leaders in paint programs. Zedcor, 4500 E. Speedway, Tucson, AZ 85712-5305. NCP (Mar '88)

"Draw It again, Sam..." is an object-oriented graphics program, like MacDraw, that adds such useful wrinkles as layered drawing, on-screen libraries, and color. Manual is weak. Version 1.03. Requires 512K+ and an 800K disk drive. \$150. Aba Software, P.O. Box 850, Frazer, PA 19355. NCP (Feb '88)

Easy3D is a three-dimensional, solid modeling masterpiece. Four variable light sources, powerful sculpting tools, and an exquisite user interface make this a must-have for graphics enthusiasts. Requires 512K+. \$149. Enabling Technologies, 600 S. Dearborn, Chicago, IL 60605. NCP (May '86)

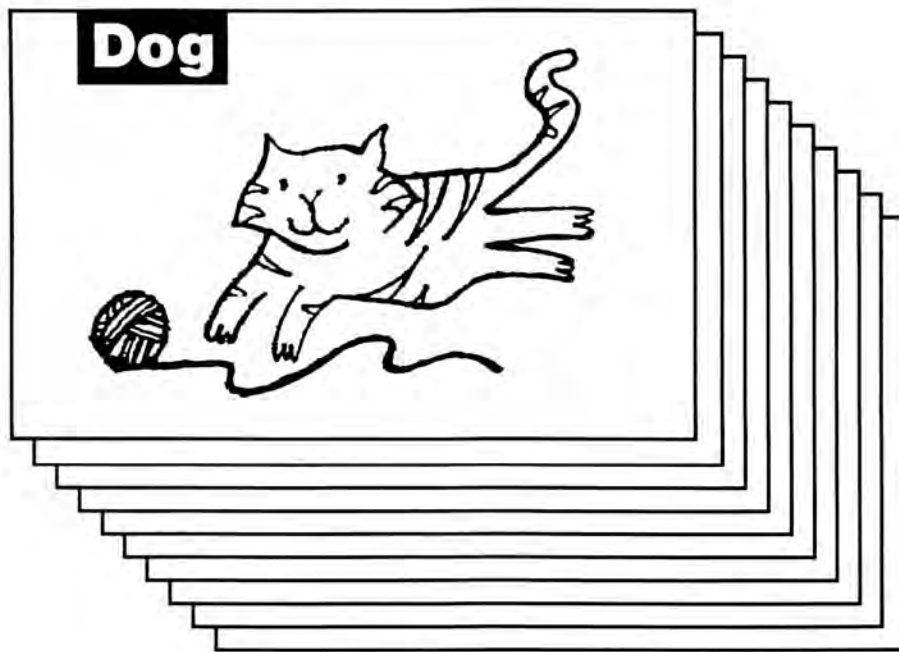
EPS Illustrations is a potpourri of illustrations with no real focus. As an art package, this one is not very useful as you cannot alter any of the drawings. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$129.95. T/Maker, 1973 Landings Drive, Mountain View, CA 94043. NCP (Aug '88)

EZ Draft is a high-level CAD application. Does things usually only found on minicomputer programs. Uses "pop-up" menus to supplement a full set of pull-down menus. Comes with an additional set of printer/plotter/monitor drivers. A real powerhouse. \$1995. \$500 for IEGS module to link to other CAD programs. Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606. CP (May '87)

FastForms! Construction Kit is both a fast and efficient business forms creator (a drawing program) and a specialized application (and DA) to fill out the data fields in your forms. \$149 (U.S.). Shana Enterprises, Advanced Technology Center #105, 9650-20 Ave. Edmonton, Alberta T6N 1G1, Canada. NCP (Nov '87)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different items are included. All install easily in user systems. Most are well executed and some are extraordinarily nice. This is a

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real bargain for font lovers. \$49.95. CasadyWare, P.O. Box 223779, Carmel, CA 93922. NCP

Fontastic is a font editor that features a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles. \$49.95. Altsys, P.O. Box 865410, Plano, TX 75086. NCP (Dec '85)

Fontographer is a complex, but excellent laser font creator. The fonts created have 300 bits-per-inch resolution. The fonts are actually downloadable PostScript files. \$395. Altsys, P.O. Box 865410, Plano, TX 75086. CP

FreeHand greatly simplifies the drawing of curves, the use of layers and text handling when manipulating PostScript graphics. And it works in color on the Mac II. Requires 1 megabyte and two disk drives. \$495. Aldus, 411 1st Avenue South, Seattle, WA 98104. NCP (Aug '88)

FullPaint is an expanded version of MacPaint. Features include full-screen drawing, multiple documents opening simultaneously, brush editing, movable tool palettes, special text effects, and much more. It fills the gaps left by MacPaint. \$99.95. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. NCP (June '86) ★'86 Eddy

GraphicWorks 1.1 is a powerful drawing and painting program that creates high-resolution bit-maps. Easels contain graphics, balloons hold text, and both reside on panels. Graphic primitives are now a separate tool. \$149.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Oct '87)

Graphindex indexes MacPaint and MacDraw format graphics without removing them from their original documents. Indexed graphics are retrieved via the Graphindex DA. Can modify an indexed graphic without affecting the original. Best for bit-mapped (Paint format) images, but the design is questionable and the execution imperfect. Requires 512K+. \$124.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May '87)

GridMaker is a tool for artists who use perspective. The program automatically generates a series of three-dimensional plane sets that can be pasted into MacDraw. Sizes and viewing vantage points are easily modified. \$49. FolkStone Design, P.O. Box 86982, North Vancouver BC V7L 4P6, Canada. NCP (Nov '86)

Illustrator 88 is a professional-level graphics program from the people who defined the PostScript language. Uses templates for precise drawing and detailed artwork. Requires 1 megabyte. \$495. Adobe Systems, 1585 Charleston Road, Mountain View, CA 94039. NCP (Oct '88)

Image Club is an overwhelming collection of EPS clip art available on disk and CD-ROM. Comes with a well-designed catalog of images. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$99. Image Club Graphics, 2915 19th St. NE, Calgary, Alberta, Canada T2E 7A2. NCP (Aug '88)

Image Studio puts a photo-retouching lab on the desktop. Editable brushes let you modify digitized images in 65 gray levels. Version 1.0 reviewed. Requires 1 megabyte + and two 800K disk drives. Mac II and MultiFinder friendly. \$495. Letraset USA, 40 Eisenhower Dr., Paramus, NJ 07653. NCP (June '88)

Images with Impact! brings clip art out of the turn-of-the-century woodcut style and into a modern graphic sensibility. "Graphics and Symbols I" is the first in a series. Features a program that reads Encapsulated PostScript Format (EPSF) files. \$99.95. 3G Graphics, 11410 NE 124th St., Kirkland, WA 98034. NCP (Aug '88)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip art. Consists of MacPaint documents and separate fonts. Volume I, Heaven, covers mythological subjects; Volume II, Earth, has secular subject matter. \$79.95 each volume;

\$149.95 each set. Qualitas Trading, 6907 Norfolk Rd., Berkeley, CA 94705. NCP (Apr '87)

LaserFonts are new fonts for the LaserWriter. Users download them to their machines. Very high quality and very simple to use. Willamette looks like Avant Garde. MicroFonts provides tiny, expanded, and condensed versions of the LaserWriter's own fonts. \$34.95 to \$44.95 each. Century Software, 2483 Hearst, #175, Berkeley, CA 94709. NCP

LaserPaint's clumsy interface makes it a slow program. There's good laser output, if you persevere through the creation of a document. The support is scads better than the documentation, which is lousy. Version 1.1.4. \$495. LaserWare, P.O. Box 668, San Rafael, CA 94915. CP (Jan '88)

Lasertalk is a PostScript programming tool that establishes interactive contact with laser printers. Preview window and on-line help make it a powerful tool. Requires 1 megabyte + and a PostScript Printer. \$249. Emerald City Software, P.O. Box 2103, Menlo Park, CA 94026. CP until registered (May '88)

The Mac Art Dept. is a collection of over 150 graphic images ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. \$39.95. Simon & Schuster, Computer Software Div., 1 Gulf + Western Plaza, New York, NY 10023. NCP (Mar '86)

Mac-a-Mug is an Identikit-type program for creating faces from facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 1 megabyte + Mac required. \$59.95. Shaherazam, P.O. Box 26731, Milwaukee, WI 53226. CP (July '86)

MacCalligraphy is the best simulation of brush painting in any graphics program. User-designed Seals and Touches enable you to design your own signature tool and the style of brush you use. Comes with a clip art disk. \$175. Qualitas Trading, 6907 Norfolk Rd., Berkeley, CA 94705. NCP (Feb '88)

MacDraft is an object-oriented graphics program. It sports advanced features such as variable scaling, single-degree rotation, complex arcs, and a FatBits-like magnification mode. Best used to complement MacDraw, not replace it. \$269. Innovative Data Design, 2280 Bates Ave., Concord, CA 94520. NCP (Feb '86)

MacDraw II updates the venerable object-oriented draw program so that it works on the Mac II. Adds color patterns in its own documents, but doesn't support color in the PICT II format. Version 1.0. Requires 1 megabyte, and two 800K disk drives or hard disk. \$395. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Nov '85)

MacModel is an economical 3-D package with shading. Somewhat sketchy Mac interface, shading speed slow (but acceptable), grainy image resolution. On-line help screens are a welcome addition. Frequent updates and low price make this a reasonably good buy. \$40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug '86)

MacPaint hasn't lost its shine after all these years. Still one of the best freehand graphics tools. Version 2.0 supports multiple windows, design templates, and a magic eraser to correct corrections. Requires 512K and second disk drive. \$125. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (July '88) ★'85, '87 Eddy

Mac3D is a feature-laden 3-D program with a MacDraw-like interface. PostScript-resolution shading with six variable light sources, user-definable tools, and many more features make this a powerhouse. Version 2.0. \$249. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP (Jan '87)

MapMaker is a digital cartographer that charts demographic and marketing information on a geographic basis. Wide variety of maps available, some at an additional cost. Version 3.0.

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Requires 512K. \$349. Select Micro Systems, 40 Triangle Center, Yorktown Heights, NY 10598. NCP (Aug '88)

MGMS: Professional CAD for Macintosh offers more than 200 functions. Very complete, capable program. Groups, Dimension, Libraries, etc., are standard. Sometimes confusing — designed for experienced, professional CAD user, not the novice. Full plotter support. 512K+. \$799. Micro CAD/CAM, 3230 Overland Ave., Los Angeles, CA 90034. NCP (Nov '87) ★'87 Eddy

MiniCad is a pro-level CAD package. Vast array of features, many accessible only through Command/Shift/Option key combinations. Works in 2-D or 3-D with easy transition from one to the other. MacDraw-like interface makes it easy to learn and use. Version 3.0. Requires 512K+. Diehl Graphsoft, 8370 Court Ave., Suite 202, Ellicott City, MD 21043. CP (Oct '87)

Phoenix 3D is an economical 3-D drawing package, with features that belong in a more expensive program. Multiple light sources, fine object placement and orientation control, and a good selection of shapes. \$49.95. Dreams of the Phoenix, P.O. Box 10273, Jacksonville, FL 32247. NCP (Oct '86)

PictureBase is a powerful graphic librarian. You can store paint and PICT formatted items and attach keywords for later search and retrieval. \$69.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Sept '87) ★'86 Eddy

Pixel Paint is a color paint program with customizable palettes and a lot of special effects. Slow Open and Save. Requires Mac II and 8-bit video card. \$495. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (May '88)

Post Art I is a collection of signed originals on disk. Overall, a pretty useless collection in terms of clip art. Meant for hanging prints on a wall. Requires a program that reads Encapsulated PostScript files. \$69.95. Olduvai, 7520 Red Rd., So. Miami, FL 33143. NCP (Aug '88)

PowerPoint is an easy-to-use desktop presentation tool. Good color schemes. Can send presentations to Genigraphics to produce color 35mm slides. Version 2.0. Requires System 4.1 or later, 1 megabyte and two 800K drives or hard disk. \$395. Microsoft, 16011 N.E. 36th Way, P.O. Box 97017, Redmond, WA 98073-9717. NCP (Aug '87)

The Print Shop makes it easy to create greeting cards, signs, banners, and letterhead. Uses its own special graphics and can import Paint files. Hard-disk users get version 1.02 or later. \$79.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Sept '87)

Slide Show Magician is useful for creating full screen audio-visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization, and digitized sound capabilities make this much more powerful than the original. Version 1.3. \$59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar '86)

Space Edit is a 3-D CAD program. Display shows top, front, side, and axonometric views of an object, all at once or one at a time. Has standard CAD features plus zoom, exploded view, animated flyover. Suppression of hidden lines is very slow. Requires 1 megabyte +. \$625. Abvent, 9903 Santa Monica Blvd., Beverly Hills, CA 90212. CP (July '87)

Storyboarder produces working animated storyboards for use in film and video production. Imports graphics from MacPaint; allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. \$495. American Intellware, P.O. Box 6980, Torrance, CA 90504. CP (Nov '86)

SunShine Graphics Library is a collection of 46 400K disks (to date) with a wide variety of high-quality digitized images stored as MacPaint files. \$20 per disk; discount scale for multiple purchases. SunShine, Box 4351, Austin, TX 78765. NCP (Feb '87)

SuperPaint is a powerful, easy-to-use graphics program with all the best features of MacPaint and MacDraw — and then some. LaserBits provides 300 dpi magnification and there are 40 editable brush shapes. Requires 512K+. \$149.95. Silicon Beach Software, 9580 Black Mountain Rd., P.O. Box 261430, San Diego, CA 92126. NCP (Feb '87) ★'87 Eddy

Trapeze is a powerful presentation worksheet that combines mathematical functions and graphic representation. The interface, which consists of an icon bar, can be awkward to use. Mac II and color supported. Version 2.0. \$395. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Dec '87)

TrueForm takes a scanned image of a paper form and turns it into an electronic equivalent, complete with fields for entering data. It can automatically sum numeric fields. Requires external 800K drive. \$495; run-time version, \$295. Spectrum Digital Systems, 2702 International Lane, Madison, WI 53704-3122. NCP (May '88)

VersaCAD is a powerful CAD program that doesn't show any of its MS-DOS roots. Excellent element manipulation, full plotter support. Library user interface is crude. Requires 1 megabyte +. \$1,995. VersaCad, 2124 Main Street, Huntington Beach, CA 92648. NCP (July '88)

VideoWorks II is an easy-to-use animation tool — the best available on the Mac. Has an Overview mode that acts as a slide show carousel for presentations. Works in color on the Mac II. \$195. Requires 1 megabyte + and an 800K drive. MacroMind, 1028 W. Wolfram, Chicago, IL 60657. NCP (Mar '88) ★'85, '87 Eddy

VideoWorks II Clip Animation, Clip Charts, Black and White Movies, and Clip Sounds are four separate aids to help you construct movies and business presentations. Requires VideoWorks II. \$49.95 to \$59.95. MacroMind, 1028 W. Wolfram, Chicago, IL 60657. NCP (Aug '88)

WetPaint consists of two 3-disk volumes of very high quality clip art. Also includes the Art Roundup DA, a good art browser/editor. Volume 1 or 2, \$39 each; both volumes, \$59. Available in PictureBase format for \$15 extra per volume. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Sept '87)

World-Class Fonts! comes in two volumes of three disks each. Includes all the Mac the Knife fonts and a lot more, including two useful utilities. This is now the best collection of ImageWriter fonts available. Each volume: \$39; both volumes: \$59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec '86)

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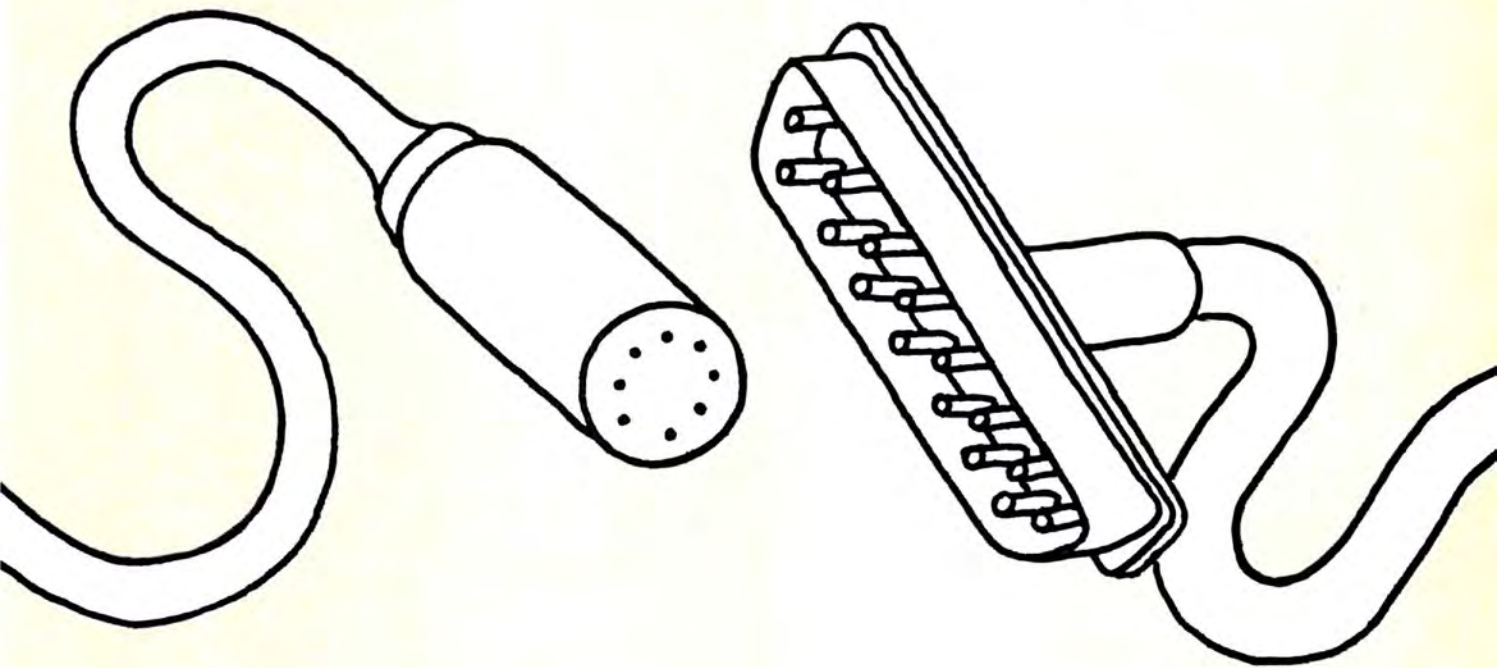
Interleaf Publisher is a speedy multiuser layout system for producing large, complicated documents. Has strong global formatting ability but can't use downloadable fonts. Requires Mac II with 5 megabytes of RAM and 40 megabyte hard disk, \$2,495. Interleaf, 10 Canal Park, Cambridge, MA 02141. NCP (May '88)

JustText is a professional-level word processor and page makeup program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. \$195. Knowledge Engineering, G.P.O. Box 2139, New York, NY 10116. NCP (Dec '85)

MacTEX is the TeX environment of choice for hardcore TeX users on the Macintosh. Very intimidating for others. Painfully slow and visually unattractive. Version 2.0. Requires 1 megabyte +. \$750. FTL Systems, 234 Eglinton Ave. East, Toronto, Ontario M4P 1K5, Canada. NCP (Apr '88)

PageMaker retains its paste-up approach to page layout. New features include auto text flow, style sheets, and spot color

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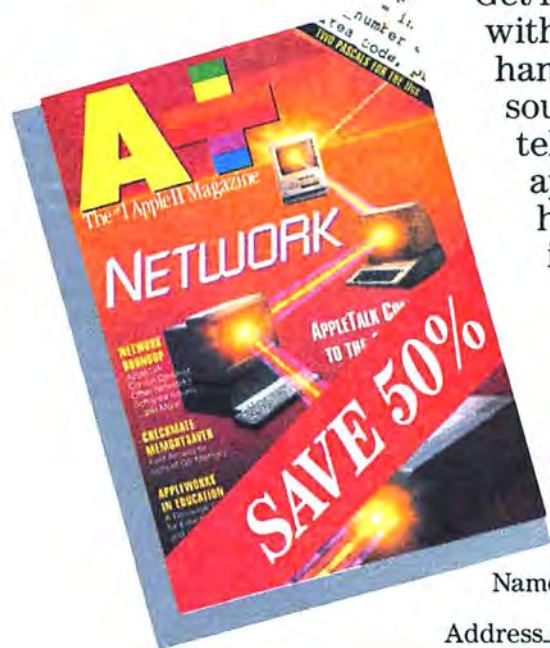
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support. The standard keeps getting better. Version 3.0. Requires 1 megabyte +, and a hard disk. \$595. Aldus, 411 First Ave. South, Seattle, WA 98104. NCP (Aug '88) (★) '85, '87 Eddy.

Portfolio: Designs for Newsletters provides more than 20 templates for two-page newsletters with preset columns, headlines, graphics, and captions. Documentation provides excellent tutorial in page design. Requires 512K+; PageMaker. \$79.95. Aldus, 411 First Ave. S., Suite 200, Seattle, WA 98104. NCP (May '87)

QuarkXPress is a high-end desktop publishing application. Layout is done in block format; powerful lining tool ties blocks together. \$695. Quark, 200 S. Jackson, Denver, CO 80209. NCP (Sept '87)

Ragtime is an "Integrated Page Processor" with text, graphics, and built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy-to-use program. Requires 512K+. \$395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. NCP (Aug '88)

Ready, Set, Go! 4 has an elegant interface and excellent manual. Powerful text wraparounds, fast word processor with hyphenation and spelling check and custom stylesheets. Requires 1 megabyte +. \$495. Letraset, 40 Eisenhower Dr., Paramus, NJ 07652. NCP (Feb '88) (★) '86 Eddy

TeXtures is an implementation of TeX, the big daddy of typesetting programs. Good for people trained on mainframes in the early days. Otherwise very sticky with a high learning curve. Version 1.0. Requires 512K+. \$495. Kellerman & Smith, 534 S.W. 3rd Ave., Portland, OR 97204. NCP (Apr '88)

COMMUNICATIONS

AppleShare is the file sharer marketed by Apple. Software-based. AppleShare requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. Interface to network is provided at a revised Finder. \$799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May '87)

ComServe allows you to share a Hayes-compatible modem over an AppleTalk network. You can call out, but you can't call in.

Works with most telecommunications packages. \$195 per server. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. CP (Feb '88)

Desktop Express is a simple-to-use, semi-automated program for using MCI Mail and Dow Jones News/Retrieval. Performance is traded off for ease of use. Requires 512K+. \$149. Dow Jones, P.O. Box 300, Princeton, NJ 08543. NCP (Jan '88)

HomePak is a package consisting of HomeTerm, an excellent, simple telecommunications program with strong macro features; HomeFind, an electronic filer as bad as HomeTerm is good; and Apple's Edit, a simple, non-HFS-compatible text-file editor. \$49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Sept '86)

InBox is an easy-to-use mail system. It's called up from a desk accessory. Has a very slick interface. Dedicated Mac not required. \$350 for starter set which includes one Administrator disk and three Connection disks. Additional Connections cost \$125 each. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (May '87) (★) '86 Eddy

InTalk comes with its own communications command language able to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample setup documents and command language files provided. \$195. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Prem)

LapLink Mac quickly transfers data to and from the MS-DOS and Mac environments. Kit contains a cable and software. Control of transfer is on the IBM side. Version 1.2. Requires 512K. \$139.95. Traveling Software, 19310 North Creek Pkwy., Bothell, WA 98011. NCP (Aug '88)

MacTerminal provides basic telecommunications and terminal emulation. Doesn't have macros nor any sort of auto redial/auto log-on capability. Best for those needing faithful VT100 or IBM 3278 emulation — it is superb at those. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

MacWorkStation is a development environment and communications program that accesses custom mainframe applications through the Macintosh interface. Modular design allows for expandability. Mac II and MultiFinder friendly.

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Version 3.0. \$2,500 for internal use license, \$5,000 for commercial use license. Apple Software Licensing, 20525 Mariani Avenue, Cupertino, CA 95014. NCP (Oct '88)

MicroPhone is a high-powered terminal program that's easy enough for novices. Very powerful command language allows full automation of communications, if desired. \$149. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (July '86) ★'86 Eddy

Microsoft Mail is an electronic mail system that runs under AppleTalk. Supports file transfers across the mail system. Full on-line help facility. Also includes "While you were out" messages. Desk accessory based. Prices determined by number of users licensed. One to four users, \$299.95; five to 10 users, \$499.95; 11 to 20 users, \$749.95; 21 or more users, \$949.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May '87) ★'87 Eddy

Red Ryder is a full-featured telecommunications program that supports MacBinary, Xmodem, and Kermit. Has big screen-support, auto procedure creator, and up to 30 keyboard macros. This is the cream of the crop (in late '87). \$80. Freesoft, 150 Hickory Dr., Beaver Falls, PA 15010. NCP (Dec '87) ★'87 Eddy

Smartcom II balances power and ease of use. Capable of unattended operation and has a very powerful command language. Supports MacBinary, Xmodem, and Hayes Verification protocols. The large-screen buffer can easily be archived. \$149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (July '86) ★'85 Eddy

Telescope is the power telecommunicator's terminal program. Can be configured to emulate any terminal. The documentation does not adequately explain the many features. \$125. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (June '86)

TOPS is a file server designed to network computers with different operating systems. Supports Macs, MS-DOS compatibles, and UNIX. Access to files and subdirectories is transparent to the user; they appear as Mac folders. Only handles ASCII or Text files. \$149 for Mac version. \$389 for PCs (comes with add-on card). TOPS, 2560 Ninth St., Berkeley, CA 94710. Serial number protected. (May '87) ★'87 Eddy

VersaTerm features include DEC VT100 and VT52, Tektronix 4014 graphics terminal and Data General DG200 emulation. Supports Xmodem and MacTerminal Xmodem protocols and MacBinary. VersaTerm is easy-to-use and well-documented. \$99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

VersaTerm-Pro is a very powerful terminal program with several special features. Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K+. \$295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. NCP (Apr '87)

WORD PROCESSORS

Document Compare allows users to compare any two MacWrite 4.5, ASCII, or MDS documents. Differences in spelling, punctuation, formatting, and wording are detected. Documents can be printed out with differences highlighted. \$99. Legalware, 33 Young St., Toronto, Ontario M5E 1S9, Canada. NCP (May '86)

Document Modeler can automate much of a professional office's correspondence. Comes in two parts: Template Maker and Document Maker. Initial setup requires time and is complex. \$299.95. Legalware, 33 Young St., Toronto, Ontario M5E 1S9, Canada. NCP (Mar '87)

Doug Clapp's Word Tools is a useful punctuation and style-editing program. It won't turn you into a Proust, but it will help you make your writing cleaner and clearer. Word counts among different formats show discrepancies, but not to worry. Requires 512K+. \$79.95. Aegis Development, 2125 Pico Blvd., Santa Monica, CA 90405. NCP (Sept '87)

Expressionist is a powerful DA that allows you to create complex mathematical equations from within an application. Equation manipulation has never been easier. \$79.95. Allan Bonadio Associates, 1579 Dolores St., San Francisco, CA 94110. NCP (July '87)

FullWrite Professional combines outlining and word processing with page layout and drawing. Its many features translate into sluggish performance unless you have a lot of extra RAM. Impressive. Version 1.0. Requires 1 megabyte. Mac II

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
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



and MultFinder friendly. \$395. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502. NCP (Sept '88)


Graham Speller is a desk accessory-based spelling checker.  Includes macro feature. Good guesser in interactive mode. Clumsy interface. Version 1.1. \$44.95. Graham Software, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Aug '88)

Kadmos Greek Font is a full character set of ancient Greek that  prints on any PostScript printer. Requires learning new typing skills, but excellent quality makes it worth the effort. \$85. Allotype Typographics, 1600 Packard Rd., Ann Arbor, MI 48104. NCP (Oct '87)


Laser Author is a high-powered, technically oriented word processor.  Good math-setting capability. Has style sheets, word count, and page layout capability. \$199.95. Firebird Licensees, P.O. Box 49, Ramsey, NJ 07446. NCP (Mar '87)


Lookup is an on-call, quick single-word spelling checker.  Designed for the way writers really work. Uses the 93,000+ word Spellswell dictionary. \$49.95. Working Software, 321 Alvarado, Suite H, Monterey, CA 93940. (Dec '87) NCP


MacGAS is a DA spelling checker with both a small and extended  dictionary. Its best point is the excellent thesaurus, provides antonyms and glossary. A slow checker. \$99. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. CP (Oct '86)


MacProof is a grammar, style, and spelling checker that's like  having your own personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program


only suggests corrections, it doesn't make them for you. And the checking process can be slow if your document is long. \$195 for stand-alone version; \$2500 for networked version. Automated Language Processing Systems, 190 West 800 North, Provo, UT 84604. NCP (Apr '87)

Macspell + is a spelling checker that installs as a desk accessory.  Works easily with MacWrite 4.5 and 2.2 and Word, but has some drawbacks. New version 1.10 just available. Requires 512K+, two drives or hard disk. \$99. Creighton Development, 16 Hughes St., Irvine, CA 92718. NCP

MacWrite is starting to show its age. While still a good, basic  program, it's out-performed by its competition. Probably enough for the occasional user. Version 5.0 includes command key equivalents and spelling checker. Requires 512KE+. \$125. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (June '88) ★'85 Eddy

MergeWrite is a mail-merge program for MacWrite (also works with  ASCII files). Program combines names and addresses from a data file into predefined fields in a form letter. Also allows simple conditional IF-THEN-ELSE equations. \$49.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074. NCP (Dec '87)

MindWrite integrates outlining and word processing better than  anyone. Version 1.1 fixes many problems of the earlier version. Sophisticated search and select options. Unimpressive speed. \$295. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Feb '88)

QUED/M is an excellent text editor that saves documents in a form  readable by most computers and printers. Doesn't support

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graphics or multiple fonts. Programming language allows creation of database. Version 2.01. \$129. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar '88)

QuickWord is a word processing accessory that adds sophisticated glossaries to MacWrite. Simple to install and use, yet powerful and efficient. \$49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP

Scriptor is designed for producing standard-format scripts. Starts with a Word document. As you change your Word document, Scriptor will reformat, renumber, and reprint the script. Supports LaserWriter and daisywheel printers. \$295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May '87)

Spelling Champion is a fast and accurate batch-type spelling checker. Back-up feature allows you to undo corrections in a paragraph. Works only with MacWrite 4.5. \$39.95. Champion Software, 6617 Gettysburg Dr., Madison, WI 53705. NCP (Oct '86)

Spelling Coach Professional is a desk accessory and stand-alone spelling checker as well as thesaurus. Includes dictionary definitions. Off-the-wall phonetic guesses. Version 3.0. \$195. Deneba Software, 7855 N.W. 12th Street, Suite 202, Miami, FL 33126. NCP (Aug '88)

Spellswell is a stand-alone batch spelling checker. Also checks for punctuation and other errors. Good dictionary, thorough checking, simple interface. Weak guessing. Version 2.0. \$74.95. Working Software, P.O. Box 1844, Santa Cruz, CA 95061. NCP (Aug '88)

Thunder! is a desk accessory spelling checker. Includes macro features. Fairly fast, good guessing of misspelled words. Small dictionary. MultiFinder hostile. Version 1.1. \$49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Aug '88)

Word Finder is an electronic thesaurus that won't replace your trusty Roget's, but is still useful for checking synonyms on the fly. Large, respectively. Version 2.0. Requires 512K. Mac II and MultiFinder friendly. \$59.95. Microlytics, 300 Main St., Rochester, NY 14445. NCP (Sept '88)

Word 3.01 fixes many of the bugs of the justly maligned 3.0. Still, it's the most feature-laden word processor around. Also has Microsoft's somewhat unusual view of what the Mac interface is. Esoteric command key combinations. Requires 512K+. \$395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073. NCP (Mar '88)

WorksPlus Spell is a speedy spelling and hyphenation checker for Microsoft Works. It includes a glossary for abbreviations and time/date stamping. The biggest drawback is its limitation to one program. \$59.95. Lundeen & Associates, P.O. Box 30038, Oakland, CA 94604. NCP (Oct '87) ★'87 Eddy

Write is a "beginner's" version of Word 3.0. More features than some word processors in its class, but not all of the features work well. Poor value, and expensive upgrade path to Word. \$175. Requires 512K+. Microsoft, 16011 NE 36th Way, P.O. Box 97017, Redmond, WA 98073-9717. NCP (May '88)

WriteNow for the Macintosh has many of the features of MacWrite and then some, including the ability to work in columns. Has built-in spelling checker with 50,000-word dictionary. \$175.

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MINIFINDERS



T/Maker, 1973 Landings Dr., Mountain View, CA 94043.
NCP (Mar '87)

SYSTEM SOFTWARE

HyperCard is a totally unique program for the Mac. It uses an index-card metaphor and it contains a programming language, HyperTalk. Requires 1 megabyte +. Free with new Macs, otherwise \$49.95. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Dec '87) ★'87 Eddy

SoftPC puts an IBM PC/XT inside your Mac without cracking the case to add any special coprocessor boards. The emulation of an MS-DOS machine is done entirely in the software. Version 1.2. Requires Mac II or SE equipped with 68020 accelerator card; 2 megabytes of RAM. \$595. Insignia Solutions, 1255 Post St., Suite 625, San Francisco, CA 94109. NCP (Nov '88)

System Software Update 6.0 contains an improved version of **MultiFinder** and new features like **CloseView** (for visually impaired users), **Map**, and **MacroMaker**. Incompatible with many programs; lots of small bugs. Requires 1 megabyte. \$49. Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014. NCP (Nov '88)

System Tools 5.0 is the Apple System upgrade for Mac Plus, SE, and II owners. It contains **MultiFinder** (a multitasking environment), a **LaserWriter** spooler, and a **Control Panel** resource to add color on the Mac II desktop. Requires 1 megabyte +. \$49. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar '88)

HYPERCARD

Business Class is a HyperCard stack that contains world travel information and itinerary planning. Uses maps to locate countries of interest, but it lacks United States domestic travel information. Requires 1 megabyte + and HyperCard. \$49.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Mar '88)

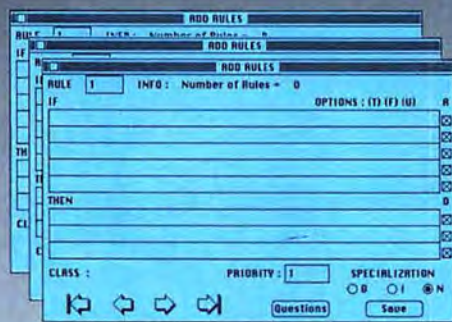
City to City imparts travel information on 31 U.S. cities including details on hotels, restaurants, and nightlife. Helps plan an itinerary. Requires HyperCard, two disk drives, and a printer. \$49.95. Activision, 3885 Bohannon Dr., Menlo Park, CA 94025. NCP (Sept '88)

Focal Point is a HyperCard stack that ties together a calendar, phone log, client accounts, and more in one easy-to-use organizational tool. Requires 1 megabyte + and HyperCard. \$99.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Mar '88)

HyperBook Maker adds many of the printing utilities that HyperCard lacks. Best used to figure out signature breaks to print pamphlets. Version 1.1a reviewed. Mac II and MultiFinder friendly. \$59.95. Ideaform, 612 West Kirkwood, Fairfield, IA 52556. NCP (June '88)

HyperAtlas is a collection of U.S. and World maps that are networked to stacks containing economic, political, and population data. Version 1.0. Requires HyperCard and second disk drive or hard disk. \$99. MicroMaps Software, P.O. Box 757, Lambertville, NJ 08530. NCP (Oct '88)

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MINIFINDERS



HyperDA lets you browse through HyperCard stacks through a desk accessory. A true equalizer for 512K Mac owners who cannot normally access stackware. Doesn't support global variables. Requires 512K+. \$69. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (May '88)

HyperTutor is a stack that teaches HyperTalk, Hypercard's programming language. Uses an interactive Test Mac on each card to write scripts. A variety of windows makes it good for both beginners and advanced programmers. \$49.95. Channelmark, 2929 Campus Drive, San Mateo, CA 94403. NCP (Apr '88)

Reports endows HyperCard stacks with the power to sort and impart information like a database. Customizing reports is difficult. Requires HyperCard. \$99.95. Activision, Inc., 3885 Bohannon Dr., Menlo Park, CA 94025. NCP (Aug '88)

ScriptExpert helps you generate HyperTalk scripts by leading you through the correct use of the language. Select a common command, and dialog boxes prompt you for necessary components. Version 1.0. Requires HyperCard. \$79.95. Hyperpress Publishing, P.O. Box 8243, Foster City, CA 94404. NCP (Oct '88)

AEC Information Manager helps middle-level managers keep track of projects from start to finish. Has date calculations, scheduling graphs, and alarms. Overpriced. Version 1.21 reviewed. Requires 1 megabyte+. \$695. AEC Management Systems, 20524 Amethyst Lane, Germantown, MD 20874. NCP (July '88)

Callope is an outlining program. Chunks of information are manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. Text files can be created for MacWrite editing. \$99. Innovision, P.O. Box 1317, Los Altos, CA 94023. NCP (Sept '86)

Comment (previously known as Memorandum) is the electronic equivalent of Post-it Notes. Notes can be attached to many different types of documents. Doesn't work well with SuperPaint or Microsoft Works. An alarm clock feature alerts users of Timed Notes. \$99.95. Deneba Systems, 7855 NW 12th Street, Suite 202, Miami, FL 33126. NCP (Nov '87)

DecisionMap organizes data to facilitate decision making. Unique weighting abilities make this a powerful tool. The decision analysis process is long and sometimes complex, but never difficult. \$145. SoftStyle, 7192 Kalanianohe Hwy., Honolulu, HI 96825. CP

Design is a powerful organizational tool. It goes beyond mere flowcharting. Graphically depicts relationships between systems. Complex, detailed program aimed at software pros. \$250. Meta Software, 150 Cambridge Park Dr., Cambridge, MA 02140. NCP (Apr '88)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has practically all the power of a stand-alone program, and then some. Can save files as Acta outlines, MacWrite files, or text files. Version 2.0. \$79. Symmetry Corporation, 761 East University Drive, Mesa, AZ 85203. NCP (Oct '88)

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MINIFINDERS



FamilyCare is a "yuppie" handbook to childhood diseases. The rule-based expert system gives advice based on symptoms. Ailments and diseases run the gamut from acne and appendicitis to wheezing and yeast infections. Lacks graphics. Version 1.0. Requires 512K. \$99. Lundin Laboratories, 29451 Greenfield Rd., Southfield, MI 48076. Mac II and MultiFinder friendly. NCP (Sept '88)

FlowMaster charts your ad dollars in print, TV, billboard, and other mediums. Analyzes cost/benefit of a campaign in terms that even jaded Mad. Ave. execs will find innovative. Includes bar-chart and tabular output. Requires 512K+. \$495. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan '88)

GeoQuery puts your database on the map by accessing zip code information. Comes with maps of the U.S. Other atlases available. Version 1.0 reviewed. Requires 1 megabyte + and second disk drive. \$349. Odesta, 4084 Commercial Avenue, Northbrook, IL 60062. NCP (July '88)

Guide allows you to "cross reference" from within a document using hypertext. You can set up words or sections of the document so that double-clicking brings up explanatory material, graphics, and other useful items. The word processing and formatting functions, however, are limited. \$135. OWL International, 14218 NE 21st St., Bellevue, WA 98007. NCP (Apr '87)

Instant Expert is an excellent way to learn the mechanics of creating an expert system. The inference engine (that ultimately finds the answer) is visible. Lacks a true Mac interface. Version 1.0. \$49.95. Human Intellect Systems, 1670 S. Amphlett Blvd., Suite 326, San Mateo, CA 94402. NCP (Jan '88)

MacProject allows a user to plan and track a project from beginning to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. \$195. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Mar '86)

MacSMARTS can create small, stand-alone expert systems. Features hypertext connections to Paint, PICT, SYLK, and text files. Still a little buggy. Version 1.03. Requires 512K+. \$149.95. Cognition Technology, 55 Wheeler St., Cambridge, MA 02138. NCP (Jan '88)

Micro Planner Plus is a great project-management system. Outstanding analysis capability. Memory based, making it much faster than the original. Includes a font menu. Even saves reports out in MacDraw format for further work. Uses standard print drivers. HFS compatible. \$495. Micro Planning International, 235 Montgomery St., San Francisco, CA 94104. NCP (Dec '86)

Microsoft Works is an integrated application that includes word processing, database, spreadsheet, and telecommunications functions. The telecommunications module includes both background up- and downloading. \$295. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Oct '86) ★'86 Eddy

MORE is an incredibly powerful outline processor with gobs of great features: instant charts, math capabilities, multiple windows, font and style control, templates, and more. Prints outlines in any of several standard formats, even in color. Requires 512K+. \$395. Symantec, 117 Easy St., Mountain View, CA 94043. NCP (Jan '87) ★'86 Eddy

STELLA for Business is a simulation tool used to model complex business systems. Requires that you master a discipline called "system dynamics." Requires 512K+. Mac II version available. \$350. High Performance Systems, 13 Dartmouth College Hwy., Lyme, NH 03768. NCP (June '88)

SuperExpert is an expert system shell that induces rules from examples. Rules become unwieldy when many criteria and

examples are used. Overpriced. Version 1.4 reviewed. Requires 512KE. \$199.95. Softsync, 162 Madison Avenue, New York, NY 10016. NCP (July '88)

DESK MANAGERS

Executive Office is a jack-of-all trades office application. Good database, word processing, graphics, and minispreadsheet. Available on 400 or 800K disks; get the 800 if you can. \$249.99. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Mar '87)

Front Desk lets small businesses and offices easily keep track of personnel schedules, activities, and payments. The program can keep track of up to 15 employees, functioning as a day-, week-, and month-at-a-glance calendar. \$149.95. Layered, 529 Main St., Boston, MA 02129. NCP (Dec '85)

MockPackage+ is a set of extremely powerful DAs. Includes a text editor, text printer (supports LaserWriter), charter, terminal, and EZmenus. HFS compatible. \$35. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Mar '87)

My Office lets you handle your files and papers in much the same way you did before you got a computer. Excellent use of graphic symbols. \$129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

Quickset is a set of desk management and organizational tools that can be used as desk accessories or applications. Functions include note filer, card filer, calendar, phone dialer, financial, and statistical calculators, and a file encryptor. \$49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP (Dec '85)

SideKick beefs up original SideKick DAs and adds two major new ones — MacPlan, (formerly Click-On Worksheet) and Outlook, a full-featured outliner. Also comes with seven applications to support the desk accessories. Version 2.0. \$99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (June '87)

Smart Alarms is the best reminder system for the Mac. Easy to use, versatile, and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. \$49.95. Imagine Software, 19 Bolinas Rd., Fairfax, CA 94930. NCP (Oct '86)

Top Desk is a set of seven self-installing (and self-removing) DAs. Menu Key adds Command key sequences to programs; View allows looking at and moving data between up to eight MacWrite documents; also included are BackPrint, Touch 'n' Go, Blank, Encrypt, and Launch. \$59.95. Cortland Computer, P.O. Box 9916, Berkeley, CA 94709. NCP (May '86) ★'86 Eddy

UTILITIES

AutoSave DA is insurance against system crashes. It saves your work automatically at intervals from 1 to 99 minutes. Compatible with many applications, but not recommended for use with databases. \$49.95. Magic Software, 1706 Galvin Rd. S., Bellevue, NE 68005. NCP (Jan '88)

CalendarMaker creates monthly calendars in a variety of formats. Users can incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available. \$49.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Dec '86)

Capture saves any portion of a Macintosh screen to the Clipboard or as a PICT file. Works in color on the Mac II. Requires 512K+. MultiFinder friendly. \$59.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jan '88)

Colorizer adds pigments to the desktop and black-and-white applications. Also colors PICT graphics. System resources in-

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MINIFINDERS



clude saving and printing color screens. A useful novelty that'll run its course as developers add color to apps. Requires Mac II. \$49.95. Palomar Software, P.O. Box 2635, Vista, CA 92083. NCP (Jan '88)

Copy II Mac does efficient sector and bit copies and in its latest version can back up virtually all Mac software. Features graphic displays of copy progress. Comes with MacTools, a multi-use utility that can recover many damaged files. \$39.95. Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219. NCP (Apr '86) ★'85 Eddy

DiskExpress unfragments disk volumes by reorganizing data into continuous sectors and arranging files to slow down further fragmentation. Works with MacServe, floppy drives, and most hard drives. Requires 512K+. \$39.95. ALSoft, Box 927, Spring, TX 77383. NCP (Feb '87)

DiskFit is a utility for backing up and restoring hard disk files. Creates a "SmartSet" of floppy disks so incremental back-ups only update files modified since the last back-up procedure. Backs up to floppies or another hard disk. Requires 512KE+. \$99.95. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (June '87)

DiskQuick is an easy-to-use cataloging program. Criteria selection option for generating subcatalogs. Requires 512K+. \$49.95. Ideafoms, P.O. Box 1540, Fairfield, IA 52556. NCP (Apr '87)

Disk Ranger is a speedy cataloging program that doubles as an efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. Can catalog HFS systems. \$34.95. Graham Software, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Mar '86)

DiskTools Plus is a set of eight useful DAs and applications. Earlier version was sold as Battery Pak. The DA Disk Tools II is a Finder replacement. Also included are an RPN calculator, Phone Pad, and Calendar Manager. Requires 512K+. \$49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Mar '88)

DiskTop is a desk accessory Finder replacement of extraordinary power and ease of use. Comes with the useful LaserStatus DA and Widgets application. The extras alone are worth the price. Requires 512K+. Upgrade from version 1.0, \$7; \$10 with new manual. \$49.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Aug '87)

Dubl-Click Calculator Construction Set lets users design personalized calculators with a variety of standard and special functions. Finished calculators can be saved as installable desk accessories or as clickable applications. \$59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Apr '86)

Eureka: The Solver is a free-form numerical equation solver. Standard trigonometric and logarithmic functions are available, as is treatment of imaginary and complex numbers. \$195. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Mar '88)

Fastback for the Macintosh is hard disk back-up software that is very quick, if not very efficient. Doesn't automatically exclude applications. Creates a separate catalog disk. \$99.95. Fifth Generation Systems, 1322 Bell Ave., Tustin, CA 92680. NCP (Apr '88)

Fedit Plus is the file and disk editor for everyone, from newest Mac owner to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. If you own a Mac, get it. HFS-compatible. \$49.95. MacMaster Systems, 108 E. Fremont Ave., #37, Sunnyvale, CA 94087. NCP (Sept '86) ★'86 Eddy

Findswell is an indispensable utility that installs a new button in the Open Dialog box of virtually every Macintosh application. Press the button, type a search string, press Find, and Findswell searches for any files that match. Click Open or

double-click to open the correct file. Requires 512K+. \$49.95. Working Software, P.O. Box 1844, Santa Cruz, CA 95060. NCP (Nov '87) ★'87 Eddy

1stAid Kit HFS recovers lost or damaged files from floppy or hard disks. An excellent manual-turned-textbook actually teaches the Hierarchical File System. Requires 1 megabyte +. Version 2.2 reviewed. \$99.95. 1st Aid Software, 42 Radnor Rd., Boston, MA 02135. NCP (June '88)

FlashBack is a utility to back up HFS hard disks onto floppies. A unique graphic display of the HFS directory facilitates file selection. The program can handle files larger than 800K. \$59.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Nov '86)

Font/DA Juggler Plus gives you unlimited access to almost any number of fonts, desk accessories, and sounds. Uses hierarchical menus. \$59.95. ALSoft, P.O. Box 927, Spring, TX 77383. NCP (May '88)

Glue adds a print-to-disk capability to many programs. ImageSaver installs as printer driver; Viewer allows copying and printing of Glue files. Handy utility for desktop publishers. \$59.95. Solutions International, P.O. Box 989, Montpelier, VT 05602. NCP (Dec '86)

Hard Disk Util uses patch files to allow users to mount and run specified programs on their hard disks. The list of patches is constantly expanding. \$89.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP

HFS Backup ranks as one of the preferred hard disk back-up utilities. Back up by file/folder or last changes. Back-up specifications can be saved as templates. Good graphic interface. Reliable program. \$49.95. PCPC, 4710 Eisenhower Blvd., Tampa, FL 33634. NCP (Dec '86)

HFS Locator Plus is the essential HFS desk accessory. It can search for a file by name or date of creation, create folders, move files from one folder to another, set a program to launch while in an application. \$39.95. PBI Software, 1163 Triton Dr., Foster City, CA 94404. NCP (Sept '86)

Icon-It! lets you create icons to use as an alternative to menu commands. Comes with 47 icon templates or you can create your own. Version 1.0. \$79.95. Olduvai Software, 7520 Red Rd., South Miami, FL 33143. NCP (Feb '88)

LabView is a graphical programming environment that creates "virtual instruments" to perform calculations, acquire laboratory data, and control instrumentation. Slow. Version 1.1 reviewed. \$1900. National Instruments, 12109 Technology Boulevard, Austin, TX 78727-6204. NCP (July '88)

LaserServe is a printer spooler for AppleTalk networks. After installation all operations are done via a desk accessory. Works with both MacServe and TOPS. Requires 512K+ and 800K drive or hard disk. \$95 per node. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. NCP (Feb '87)

Mac Disk Catalog II is a utility that will quickly organize a moderate-size disk library. Easy to use with powerful reporting and label-making features. \$49.95. New Canaan Micro-Code, 136 Beech Rd., New Canaan, CT 06840. NCP (Dec '85)

MacEZ-Mill is a CAM program that controls industrial milling machines. Quickly writes part programs that previously only very experienced designers could execute. \$6000. Bridgeport Machines, 500 Lindley Street, Bridgeport, CT 06606. CP (July '88)

MacFlow is a design tool created for programmers. Traditional flowcharting symbols are linked together, and a symbol can be connected to a separate flowchart file. Now supports custom symbols. \$125. Mainstay, 5211-B Derry Ave., Agoura Hills, CA 91301. NCP (Apr '87)

MacInUse tracks time spent in applications and saves info as text files. Installs on any disk, works in background. MFS, HFS compatible. Extremely valuable for tax purposes, client re-

MINIFINDERS



cords, etc. \$79. SoftView, 4820 Adohr Lane, Camarillo, CA 93010. NCP (Jan '87) ★'86 Eddy

MacLabeler lets users instantly index and print labels for all the disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. \$49.95. Ideaform, P.O. Box 1540, Fairfield, IA 52556. NCP (Prem)

MacNosy is a global disassembler. A very advanced user can use this program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going IF you have the skill to guide it. The documentation is sparse. For pros only. \$90. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

MacSafe is a data file security program that allows you to place multiple files into a "safe," and then you can further protect them through two types of encryption (including DES). Flexible and very easy to use. Allows for installation on hard disk. \$149.95. Kent Marsh Ltd., 1200 Post Oak Blvd., Houston, TX 77056. CP (Mar '87)

MacServe converts a Mac and a hard disk into a disk and print server. Uses the AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. \$250. Requires 512+. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

MacTree displays your files in the form of a hierarchical tree. Good idea, poor performance. Can't view tree easily. Good search function. Requires 512K+. \$69.95. Software Research Technology, 22901 Mill Creek Dr., Laguna Hills, CA 92653. NCP (Apr '88)

MacZap is a three-part disk and memory utility. It can be used to recover some damaged files and disks, compare disks, analyze disk structure, and make back-up copies of most disks. \$60. Micro Analyst, 2505 Roxmoor, Austin, TX 78723. NCP (Jan '86)

Menu Fonts displays the names of fonts in the actual font instead of standard Chicago. Won't work with programs that have a nonstandard Font menu or no Font menu. Comes with Lock-Out, a utility that gives password access to your Mac, and FastFormatter, a utility for formatting multiple blank disks. Requires 512K+. \$15. Beyond Software, 6069 E. Grant Rd., Tucson, AZ 85712. NCP (July '87)

myDiskLabeler is an excellent label maker. It can read directories and use large or small icons or anything desired. Comes with 54 pre-cut labels. \$44.95; with color printing ability (on the ImageWriter II), \$54.95; with PostScript font capability (on the LaserWriter), \$64.95. Williams and Macias, P.O. Box 19206, Spokane, WA 99219. NCP (Aug '87)

'Ncryptor is a simple safe program that lets users password-protect their files. The same program is used for encoding and decoding. This is one of the best products in its category. \$39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP

NightWatch locks up your hard disk by using a floppy start-up disk that acts as key. Type in the correct password, and access to the hard disk is allowed. Version 1.02. Requires 512KE, a hard disk, and an 800K drive. Mac II and MultiFinder friendly. \$149.95. Kent Marsh Ltd., P.O. Box 460289, 1200 Post Oak Blvd., Suite 210, Houston, TX 77056. NCP (Sept '88)

On Cue lets you switch applications without returning to the Finder. Under MultiFinder, active applications are listed on a pop-up menu. Can also launch directly to a specific document. Version 1.0. Requires 512K. Mac II and MultiFinder friendly. \$59.95. Icom Simulations, 648 South Wheeling Rd., Wheeling, IL 60090. NCP (Sept '88)

Packit III is an essential utility. Primarily used to temporarily "glue" files together, it can also compress and encrypt. Feeware.

\$10, \$10 for printed manual. Harry R. Chesley, 1850 Union St., San Francisco, CA 94123. NCP (Jan '87)

PowerStation is an extremely easy-to-use, versatile and powerful Finder substitute. Loaded with powerful features. Comes with Pyro! \$59.95. Fifth Generation, 1322 Bell Avenue, Tustin, CA 92680. NCP (Dec '87)

Printworks for the Mac is a comprehensive software-based dot-matrix printer control system. Optimizes printing from different applications, and easy to use. Requires 512K+. \$75. SoftStyle, 7192 Kalaniana'ole Hwy., Honolulu, HI 96825. NCP (Aug '87)

Programmer's On-line Companion puts an abridged version of *Inside Macintosh* in your system for reference. Simply read the text or transfer some or all of it directly into your normal editing window. Non-Mac-ish interface makes the program confusing, somewhat difficult to use. \$34.95. Addison-Wesley, Route 128, Reading, MA 01867. NCP (July '87)

Quick & Dirty Utilities, Volume One is a disk full of handy programs. Several desk accessories include a menu bar clock and a terminal emulator. \$39.95. Dreams of the Phoenix, P.O. Box 10273, Jacksonville, FL 32247. NCP (Nov '85) ★'85 Eddy

QuickKeys lets you make full use of your keyboard. Assign any command (menu choices, DAs, etc.) or series of text blocks and/or command to any key or key combination. Enormously powerful; necessary for Apple Extended Keyboard owners. Requires 512K+. \$99.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Jan '88) ★'87 Eddy

RamSnap is a RAMdisk and disk cache in one easy-to-use package. Can store multiple configurations as files. Good product but a little pricey. \$30. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (June '87)

Read-It! is the best consumer value in optical character recognition software. Works with any scanner that saves images as a bit map, PICT or TIFF file. Comes with type tables that can be customized. Version 1.1. \$395; ThunderScan version, \$149.95. Olduvai Software, 7520 Red Rd., South Miami, FL 33143. NCP (Apr '88)

Sentinel encrypts data files (or sets of files) using a super-secure DES or a super-fast SuperCrypt algorithm. Provides high-level security if you can keep your passwords secret. Requires 512KE. \$295. SuperMac, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Apr '88)

SmartScrap and The Clipper are two useful desk accessory utilities for graphics work. SmartScrap is a major enhancement to the standard Scrapbook DA. The Clipper provides you with a transparent Clipboard window, allowing you to resize or crop a graphic to the area that it will be pasted to. \$59.95. Solutions International, P.O. Box 989, Montpelier, VT 05602. NCP (July '87) ★'87 Eddy

SoundWave is a useful sound recording and editing utility. Works with waveforms; able to change sampling rates. Previously known as SoundCap. \$199.95. Impulse, 6870 Shingle Creek Parkway, Minneapolis, MN 55430. NCP (Apr '88)

Stepping Out II is a software alternative to a large-screen monitor. Lets you create a virtual screen (as large as memory allows) inside the Mac's 9-inch screen. Automatically scrolls to new document position as you type or draw. Version 2.0. Requires 1 megabyte. \$95. Berkeley System Design, 1700 Shattuck Avenue, Berkeley, CA 94709. NCP (Oct '88)

Suitcase is a transparent program that automatically lets you use all your fonts and DAs. Foolproof and indispensable. Comes with Pyro!, the best screen saver. Requires 512K+. \$59.95. Fifth Generation, 1322 Bell Avenue, Tustin, CA 92680. NCP (Nov '87) ★'87 Eddy

SuperLaserSpool is a LaserWriter spooler. Very fast because it does conversion to PostScript in the background, but

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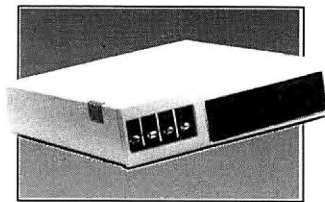


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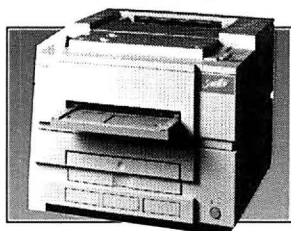
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doesn't print a faithful rendition of PageMaker documents as a result. \$149.95 single user, \$395.95 for up to five users on one network. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94043. NCP (June '87)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This program lets users run several programs at once (up to eight on a 1-megabyte or larger machine). Switching between the programs is nearly instantaneous. Requires 512K+. \$19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (June '86)

Symantec Utilities for Macintosh (or SUM) reduces worries about losing data. It prevents, diagnoses, and if required, fixes many serious disk and file problems. Recovers lost files on crashed hard disks. Version 1.0. Requires 512KE. \$99.95. Symantec, 10201 Torre Ave., Cupertino, CA 95014. NCP (Sept '88)

Tempo is a desk accessory that allows most Mac commands to be intelligently recorded and played back. Capabilities include pausing, conditional branching, and macros that work between applications. \$99. Affinity Micro Systems, 1050 Walnut St., Boulder, CO 80302. NCP (July '86)

TMON is the debugger for the Mac. This isn't open to question. TMON is simply the best. Comes with the latest version of Darin Adler's Extended User Area. \$149. ICOM Simulations, 626 Wheeling Rd., Wheeling, IL 60090. NCP

Turbo Download is a desk accessory designed specifically to increase the speed of Xmodem data transfers from national databases to your Mac. Speed increases range upward from 50 percent to over 300 percent at 2400 baud. \$39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP

Twelve-C Financial Desk Accessory brings all the power and functionality of a Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and all registers can be viewed while calculator is running. \$49.95. Positive Works, 142 Cone Road, Ormond Beach, FL 32074. NCP

TypeNow is a desk accessory that allows the Mac and ImageWriter to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back. \$39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jan '86)

WorksPlus Command lets you build and define macros for all Works modules. Predefined macros provide for an even tighter integration of the program's word-processing, spreadsheet, and database modules. Requires 1 megabyte +. \$99.95. Lundeen & Associates, P.O. Box 30038, Oakland, CA 94060. NCP (May '88)

LANGUAGES

AAIS Prolog is a fast standard Prolog with excellent debugging and error handling. Good for serious program development. Documentation is not as good as the program. \$150. Advanced AI Systems, P.O. Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar '87)

Allegro Common LISP's development environment is a full EMACS style editor called FRED that implements most Common LISP editing and debugging functions. Version 1.2. Requires 1 megabyte and a hard drive. \$600. Coral Software, P.O. Box 307, Cambridge, MA 02142. NCP (Nov '88)

Aztec C is a C language that will appeal to users with a UNIX background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. \$75 beginners, \$199 basic system, \$299 development system, \$499 commercial system. Manx Software Systems, P.O. Box 55, Shrewsbury, NJ 07701. NCP (May '86)

Basic Compiler is the long-awaited compiler for Microsoft BASIC. The interface is unfriendly, but it gets the job done. Compiled programs run faster, but you can still tell they are written in BASIC. \$195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May '87)

ExperCommon Lisp is a LISP development system. Not fully Common LISP compatible, but creates good compiled code and stand-alone applications. Requires 1 megabyte +. \$995. ExperiTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. NCP (Aug '87)

ExperLISP is a useful programming language for high-level programmers. The more you use it, the more you'll figure out about it. \$495. Requires 512K+. ExperiTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperLogo is a version of the popular teaching language, Logo. Features three-dimensional graphics using "bunnies" rather than the usual "turtles." Very speedy, smooth program. Comes with an excellent manual. \$149.95. ExperiTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperProlog II is a Prolog based on the new Prolog II standard. Has the ability to handle infinite trees and allows user-defined functions that operate conditionally. Documentation is not the best and Mac interface is nonstandard. \$495. ExperiTelligence, 559 San Ysidro Blvd., Santa Barbara, CA 93108. NCP (Mar '87)

Lightspeed C provides an integrated environment for developing desk accessories, applications, and code resources in C. The editor works with the compiler for searches and file management. Can get awkward if you need something outside the environment. \$175. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Apr '87)

Lightspeed Pascal is a fast, powerful development system for Pascal programming. Fully integrated Mac-like environment. Requires 512K+. \$125. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Feb '87)

LPA MacProlog is a much improved program that includes incremental and optimizing compilers, a graphics environment package, and C and Pascal submodules. Version 2.0. Requires 1 megabyte +. \$495. Programming Logic Systems, 31 Crescent Dr., Milford, CT 06460. NCP (Feb '88)

MacAsm is a software development system that allows programs to be written in assembly language. Programmers can assemble, edit, and test software, and an integrated resource compiler lets independent applications run from their own icons. \$125. Mainstay, 5311-B Derry Rd., Agoura Hills, CA 91301. NCP

Mac C is a good, highly Mac-oriented implementation of this popular development language. Assembler and linker included. \$425. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP ★'85 Eddy

MacExpress is a development environment or shell. Programmers use it to save time and effort when developing stand-alone applications for the Mac. \$195. ALSoft, P.O. Box 927, Spring, TX 77383. NCP (Feb '86)

MacForth Plus is an excellent implementation of the popular Forth programming language. New, reduced price: \$199. Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

Mach II is a multitasking implementation of Forth that allows local variables and text files. Can create stand-alone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. \$99.95. Requires 512K+. Palo Alto Shipping, P.O. Box 7430, Menlo Park, CA 94026. NCP (Apr '86)

Macintosh 68000 Development System is a fairly traditional assembly language package. The two-disk set provides an editor (Edit), an assembler, a linker, an executive, and a resource compiler. \$195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

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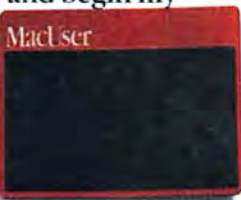
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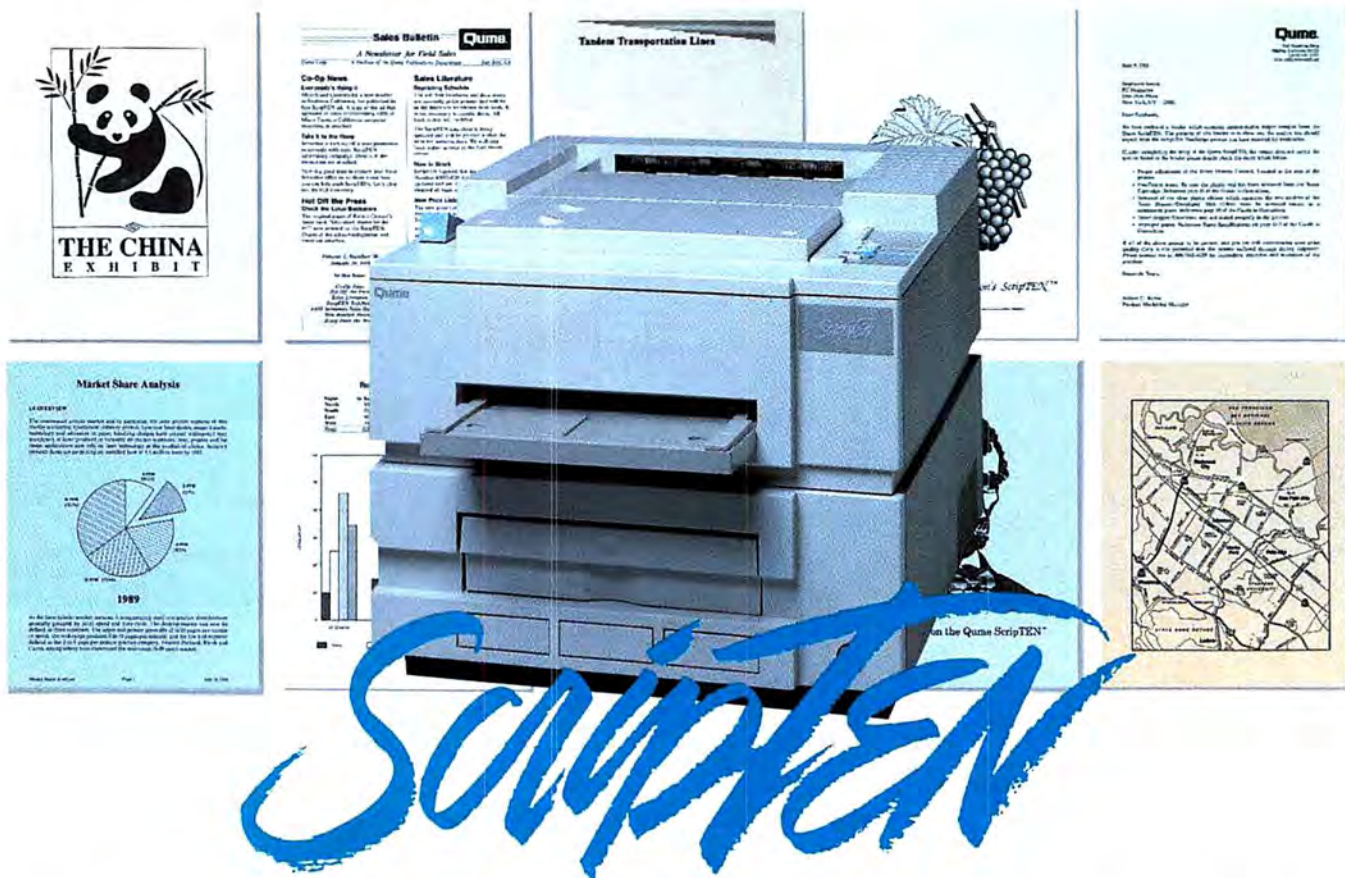
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MINIFINDERS



Macintosh Pascal is Apple Computer's version of this very popular programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabilities. Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. \$125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (June '86)

MacScheme + Toolsmith is a Mac version of Scheme, a LISP dialect. Beautiful implementation, marred only by relative slowness compared to similar products. Get Toolsmith. Requires 1 megabyte +. \$395. Semantic Microsystems, 4470 S.W. Hall, Beaverton, OR 97005. NCP (Aug '87)

Megamax C is an easy-to-use, full version of C. Has a compiler, linker, disassembler, editor, and much more. Good for beginners. Excellent documentation. \$299.95. Megamax, P.O. Box 851521, Richardson, TX 75085. NCP

Microsoft BASIC was the Mac's first programming language. This interpreter (it's not a compiler) now supports the Toolbox and the whole Mac interface can be implemented in your programs. For nonprogrammers there are lots of programs available. \$99. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP ★'85 Eddy

MIDIBasic is a library of simple, but highly useful routines for writing MIDI software. Good stuff. Sketchy documentation. Works with both Microsoft and ZBasic. Requires 512K+ plus BASIC. \$49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug '87)

Object Logo is an object-oriented programming language with access to the Toolbox. Good product, but can't produce stand-alone applications. Requires 512K+. \$79.95. Coral Software, P.O. Box 307, Cambridge, MA 02142. NCP (Aug '87)

Personal Prolog is an inexpensive and well-documented program. Has no debugging or search and replace facilities, making it a more appropriate tool for learning than development. Documentation and use of Mac interface are excellent. \$64.95. Optimized Systems Software, 1221 B Kentwood Ave., San Jose, CA 95129. NCP (Mar '87)

Prolog/m is a solid Prolog following the Edinburgh standard. Has extensive debugging facilities, but you'll need a separate Toolbox disk with 58 additional predicates. Drawback: no true editing or printing facilities. \$99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar '87)

QUED (Quality Editor for Developers) is the ultimate source code editor. Loaded with useful and well-thought-out features, it will make any programmer's life much easier. It is not a word processor, however. \$65. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar '86)

TML (MacLanguage Series) Pascal is a good Pascal compiler, capable of producing stand-alone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K+. \$99.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (June '86) ★'86 Eddy

TML Source Code Library shows how to write programs that use custom definition routines, speech, serial drivers, split bars, and other topics. Provided on three 400K diskettes. Requires TML Pascal. \$79.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec '86)

Visual Interactive Programming is a unique visual programming system for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. \$149.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (June '87)

ZBasic is a fast, interactive compiler capable of creating stand-alone applications that take advantage of Mac's unique

features and abilities. Includes Edit, RMaker and MacInTalk. Requires 512K+. \$89.95. Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. NCP (Dec '86)

EDUCATION

Alphabet Blocks teaches prereaders the letters and sounds of the alphabet. The digitized voice of an on-screen elf is clear and pleasant. Very intuitive. Requires 1 megabyte +. \$59.95. Bright Star Technology, 14450 N.E. 29th Place, Bellevue, WA 98007. NCP (May '88)

American Discovery is an interactive United States geography game that teaches states, capitals, and, in a roundabout manner, postal codes. Suffers from small maps. Requires 512K+. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (May '88)

Business Simulator is a training tool in a simulation game. Make decisions that manage the company through several stages over 25 years. Decisions become more difficult over time. Requires 1 megabyte +, two disk drives (one must be 800K). May be run from a hard disk. \$69.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec '87)

ChipWits is a combination game and teaching tool. Players create programs to maneuver robots through a set of eight mazes. The programs are written in ChipWit's built-in icon-based programming language (IBOL). \$49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP ★'85 Eddy

Course Builder creates stand-alone educational applications. An easy-to-learn dedicated programming language uses blocks and arrows. Graphics, animation and sound can be integrated. Version 2.0 allows mathematical calculations. Poor documentation. \$395, plus \$10 shipping. TeleRobotics International, 8410 Oak Ridge Highway, Knoxville, TN 37931. NCP (Oct '87)

KidsTime is a package of five quality educational programs for children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech and one is a nice introduction to musical notes. Sparse documentation. \$49.95. Great Wave, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Oct '86) ★'86 Eddy

LearnWord 3.0 is a three-part series of cassette tape/diskette modules that explain the intricacies of Word 3.0. They do the job, but remind you why cutting classes was more fun. \$49.95 per module. Personal Training Systems, P.O. Box 54240, San Jose, CA 95154. (Apr '88)

LXR-Test generates tests from a database of questions. Makes it easy to modify and scramble test questions. Flexible output. Requires Mac 512E+, two 800K drives, or a hard-disk drive. \$199 or \$399, depending on features. Logic eXtension Resources, 9651 Business Center Dr., Rancho Cucamonga, CA 91730. NCP (May '88)

MacEdge and **MacEdge II** each contain eight reading or math drill programs for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws. \$49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

MacType offers structured typing instruction. Can teach both standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. \$49.95. Palantir Software, 12777 Jones Rd., Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. \$49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

MINIFINDERS



On Becoming a Desktop Publisher is a video training tape based largely on the syndicated television program, "The Computer show." Good primer on the fundamentals of DTP products. Will eventually become dated. Requires Beta or VHS VCR. \$49.95. Ocean Communications, 1641 North First St., Suite 160, San Jose, CA 95112. (Sept '88)

Practica Musica uses an interactive game and practice approach to teach music theory and ear training. Excellent training tool for the serious music student, it is also fun for anyone who wants to develop a trained ear for intervals, chords, and melodies. Requires 512K+. \$125. ARS Nova Software, P.O. Box 40629, Santa Barbara, CA 93140. NCP (Nov '87) ★'87 Eddy

Reader Rabbit teaches 4-to-8-year olds how to read in four elegant games that play and build off of each other. Requires 512KE+ and an 800K drive. Mac II and MultiFinder hostile. Version 2.0 reviewed. \$59.95. The Learning Company, 6493 Kaiser Dr., Fremont, CA 94555. CP (June '88)

Sensel Physics is a capable, intelligent, well-designed study aid. Covers Vectors to Thermodynamics to The Nature of Light. Animated experiments let you try out concepts. Requires 512K+. \$99.95. Broderbund Software, 17 Paul Dr., San Rafael, CA 94903. CP (Jan '88)

Subli-Mac is a self-hypnosis program, combining subliminal, relaxation, and positive-self-image techniques. Flashes a brief user-written message (against a diversionary pattern) at your subconscious. Dangerous near hard disks. Manual suffers from terminal California-ese. \$39.95. Psy-Den, P.O. Box 248, Champlain, NY 12919. NCP (Jan '88)

Typel is a typing tutorial that is both practical and flashy. It allows users to interrupt and move easily between functions; however, use of the Return key or space bar are assumed but never explained. Version 1.0. Requires 512K. \$49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903-2101. NCP (Nov '88)

Typing Instructor Encore recognizes that it's being used on a word processor. While it is easy to control, there are some strange bugs in the program. Requires 512K. \$49.95. INDIVIDUAL Software, 125 Shoreway Rd., Ste. 3000, San Carlos, CA 94070-2704. NCP (Nov '88)

Typing Tutor IV consistently tests your use of all keys, including seldom-used ones. It's hard to maintain user's attention span as the testing material is unimaginative. Requires 512K. \$49.95. Simon & Schuster, One Gulf and Western Plaza, New York, NY 10023. NCP (Nov '88)

ENTERTAINMENT

The Ancient Art of War gives users a chance to refight some famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. \$44.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Apr '86)

Apache Strike would have been an excellent arcade game in the late '70s. Now, it's passe. Navigate a helicopter to destroy ever-increasing numbers of enemy aircraft and tanks. Mac II hostile. Requires 512K+. \$49.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (July '88)

Archon pits the forces of Light against Dark in a quest to gain control of five Power Points on a checkerboard grid. The shifting cycles of squares' colors keep the balance of power ever-changing. One or two players. \$39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct '86)

Balance of Power is the world's first computer peacegame. This simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play

make this a classic. \$49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

Battle Stations is a deceptively simple game based on the pen and paper game of Battleship. Requires strategy on several levels. Makes excellent use of Mac sound and graphics. Fun, casual game, especially when the Mac is one of the players. Requires 512K+. \$30. Timeline, P.O. Box 60, Ypsilanti, MI 48197. NCP (June '87)

Beyond Dark Castle brings back Prince Duncan in an encore performance to run, jump, and beat his way to victory. But really, just more of the same. Requires 512KE. \$49.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (Aug '88)

Beyond Zork is yet another installment in the famous Zork series of text adventures. Find the fabled Coconut of Quendor to restore failing magic in this expert-level game. On-screen mapping and the Mac's window environment are utilized. \$49.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP (Apr '88)

Bureaucracy is a paranoid text adventure that dares you to move to a new house and job and still maintain some degree of sanity, not to mention a low blood pressure. Written by Douglas Adams of Hitchhiker's fame. \$39.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP (Aug '87)

The Chessmaster 2000 is a masterful chess program that will appeal to both novice and master. You can view the board from 2-D or 3-D perspective and turn the board for a better look. Play is smooth and easy, and the program responds by voice. You may get tired of hearing "Gotcha," though. \$39.95. The Software Toolworks, 13557 Ventura Blvd., Sherman Oaks, CA 91423. CP (July '87)

Chuck Yeager's Advanced Flight Trainer doesn't quite have the right stuff to hold interest for long. Simplistic controls. Lacks features found in versions for other computers. Version 1.0. Requires 512KE and two 800K disk drives. \$49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Nov '88)

Crystal Quest combines all the good elements of nearly every video game ever made. Move a piece around to gobble up points and crystals. Shoot the nasties and get through the goal before they get you. Excellent sound effects. In color on the Mac II. Requires 512K+. Greene, 15 Via Chualar, Monterey, CA 93940. CP (Apr '88)

Dark Castle is an outstanding achievement in action games which integrates RealSound with superb animation and graphics. You'll need better-than-average hand/eye coordination, but it's well worth the effort. Requires 512K+. \$39.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (Apr '87) ★'87 Eddy

Deja Vu: A Nightmare Comes True is a graphic adventure that breaks new ground. Innovative use of the Mac interface in a truly playable and exciting game. A great introduction to graphic adventure games. \$49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan '86) ★'85 Eddy

Down Hill Racer is an action game with three skier personalities, four courses and four skill levels. There's something here for every player, no matter how bad or good. Full digitized sound (very nice!). \$49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sept '87)

Enchanted Scepters is a surround-sound graphic adventure game. It has a limited vocabulary and virtually no story. Offers extensive and varied scenes and utilizes the Mac interface to the fullest. \$39.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. CP (May '86)

Falcon simulates an F-16 fighter jet with gut-tightening, sweat-making realism. Go against MiGs and dodge SAMs scenarios. Requires 1 megabyte+. \$49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (May '88)

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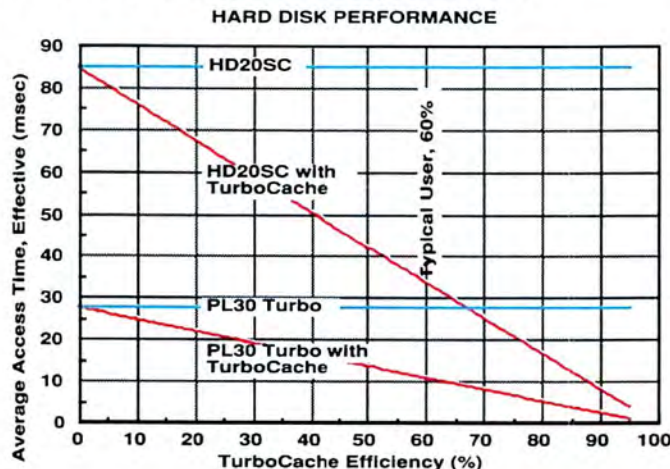


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MINIFINDERS



Ferrari Grand Prix is an exciting race car simulation game. Mastering it takes quite a bit of time and effort. Startup course and four other courses are built into the program. You can also design your own courses and backgrounds. Requires 512K+. \$59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (July '87)

Flight Simulator puts you at the controls of a small plane (prop or jet) and lets you roam North America. As difficult as real flying. Mac version has features not found in earlier versions, including spotter aircraft. Not all features available on 128K. \$49.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Nov '86)

Fokker Triplane is about as near to flying as you can get seated in front of a computer. Very realistic simulation and excellent graphics. Well-designed and implemented. \$59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb '86)

Fool's Errand is an outstanding collection of 80 puzzles woven around a mythical theme of an evil priestess and the search for wisdom. Requires 512K+. \$49.95. Miles Computing, 7741 Alabama Avenue, Canoga Park, CA 91304. NCP (July '88)

GO is the Chinese equivalent of chess. Players plonk markers on a grid to gain territory and outwit an opponent or the computer. Requires 512K+. Mac II hostile; MultiFinder friendly. Version 1.0 reviewed. \$49.95. Infinity Software, 1144 65th St., Studio C, Emeryville, CA 94608. NCP (June '88)

Grand Slam is an absorbing and realistic tennis simulation game. Practice or play tournament against Mac-controlled players with different styles and abilities on four different surfaces. 512K or Mac Plus. \$49.95. Infinity Software, 1331 61st St., Emeryville, CA 94608. CP (Nov '86)

Handwriting Analyst produces a personality profile based on answers to questions about one's handwriting. It's simple and the results will amaze and astound. \$49.95. Ciasa, 2017 Cedar St., Berkeley, CA 94709. NCP (Apr '88)

HardBall is a baseball simulation game complete with umpire's calls and crowd sounds. Great graphics and a lot of fun for fans. \$44.95. Accolade, 5500 S. Winchester Boulevard, San Jose, CA 95128. CP (Feb '87)

Hollywood Hijinx substitutes a modern Hollywood estate for the famous Underground Empire, but otherwise represents a return to Zork gameplay and feel. There's even a maze to navigate. Simplistic, but good. \$39.95. Infocom, 15 Cambridge Park Dr., Cambridge, MA 02140. NCP (June '87)

Klondike is a version of solitaire that uses video game-like scoring to create a superb, totally addictive game. Simple to play, nearly impossible to stop playing. Version 3.3. Shareware: \$10. Unison Software, 415 Clyde Ave., Mountain View, CA 94043. NCP (Dec '87)

Leather Goddesses of Phobos is another in the long line of witty and entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3-D comic and a scratch 'n sniff card. It has three levels of play: tame, suggestive and lewd. \$39.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP (Feb '87)

Lode Runner is a 150-screen action-strategy challenge. Move around a grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. \$14.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

MacCourses adds four very challenging new courses to MacGolf. Courses are swapped on the original MacGolf master disk two at a time. Nice add-on for a good game. Requires MacGolf. \$34.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (Apr '87)

MacMan is a two-part package. The software portion is a decent PacMan-like game. The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. \$39.95.

Nuvo Systems, 225 Tank Farm Rd., San Luis Obispo, CA 93401. CP (Aug '87)

Mac Pro Football is a terrific sports simulation that gives you the chance to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. \$49.95. Avalon Hill, 4517 Harford Rd., Baltimore, MD 21214. CP (Mar '87)

MacRacquetball uses digitized videos and sounds of professional players for a realistic simulation. Has lots of control settings and can be played against someone else over a modem or between hard-wired Macs. Turn off hard disks before playing. \$59.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (Oct '87)

Maze Survival challenges players to destroy maze walls before roving bugs are squashed against them. Bugs lay eggs to spawn a new generation. Repetitive. \$34.95. Olduvai Software, 7520A Red Road, South Miami, FL 33143. NCP (Aug '87)

MazeWars+ is an interactive, multiplayer game to be played on AppleTalk or through a modem link. Chase opponents through a four-level maze. Requires 512K+, AppleTalk or Hayes-compatible modem. \$49.95. MacroMind, 1029 W. Wolfam, Chicago, IL 60657. NCP (Nov '86)

Mind Over Mac features five games. Entertainment for the whole family. Good graphics paired with synthesized sound and on-screen help. \$49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb '86)

MoonMist is an introductory level text adventure game. This is a typical haunted English castle story, not quite up to Infocom's best. It has four versions, so it's good for more than one play. \$39.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP (May '87)

MSFL: Pro League Football is a professional football league simulation that encourages people to play people, not the machine. Fast with lots of stats. Quirky MS-BASIC behavior. Spotty manual. No LaserWriter support. Requires 1 megabyte+. \$49. MicroSports, P.O. Box 15799, Chattanooga, TN 37415. NCP (Apr '88)

NewGammon is animated backgammon that will challenge even good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high-speed mode is included. \$39.95. Newsoft, P.O. Box 3046, Newport Beach, CA 92663. CP

NFL Challenge simulates coaching and watching professional football. Comes on two disks, one with program and System, the other statistical data. Play against either human or computer coaching. Plays are selected from pre-defined playbooks. \$99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (June '87)

Ogre is a strategy tank game played on a hexagon grid. The ogre is an intelligent cybertank out to smash your command post. Customize your defense. Exceptionally good Mac interface. Has two-player option. \$30. Origin Systems, 136 Harvey Rd., Building B, Londonderry, NH 03053. CP (Nov '87)

Orbiter puts a real space shuttle on the Mac screen. A multitude of controls, intelligent on-board computer with speech capabilities, real-time graphics, and 16 distinct missions help this program succeed as both a game and a simulation. \$49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (July '86)

Patton vs. Rommel is a traditional-style strategic war game. It covers events in Normandy in 1944. While complex, it's well-designed and very playable. \$39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Apr '87)

The Pawn is an unusual British interactive adventure game with text and graphics. The unique interface has some drawbacks, but The Pawn has humor, social satire, is entertaining, and is

MINIFINDERS



challenging. \$44.95. Requires 1 megabyte +. Firebird, P.O. Box 49, Ramsey, NJ 07446. CP (Mar '87)

Pinball Construction Set lets users create their own pinball games, as elaborate or as easy as desired. Uses MacPaint for backgrounds and has lifelike sounds (on 512K+ Macs). \$39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jan '86)

Plundered Hearts brings gothic romance to interactive fiction in the familiar Infocom mode of puzzles, mazes, and riddles. You play a 17th-century heroine dodging pirates to rescue her wrongly imprisoned father. Medium difficulty. \$39.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. CP (Jan '88)

Portal is an intriguing science fiction novel for kids that suffers from having a poor interface. Storyline: All of humanity is missing and you have to search through a database for files that reveal the mystery. Nothing in the way of role-playing, and the Mac version is slow and buggy. \$49.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Oct '87)

PT-109 by any other name is Gato, a WWII submarine simulator also put out by Spectrum. Three-year-old technology with a minor face lift. Version 1.0. Requires 512K. Mac II friendly; MultiFinder hostile. \$49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (Sept '88)

Puppy Love is a combined game and teaching tool. As you teach your puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. \$29.95. Addison-Wesley, Route 128, Reading, MA 01867. CP (Mar '87)

Quarterstaff is a fantasy adventure game of the typical "good versus evil" variety. Ability to use characters in other adventures gives this game a lot of potential for development. Version 1.2. Requires 1 megabyte +. \$49.95. Simulated Environment Systems, 800 South Pacific Coast Hwy., Redondo Beach, CA 90277. NCP (Mar '88)

Seven Cities of Gold is an educational program masquerading as an adventure game and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed a few missions and collect gold. Nice work if you can get it. \$39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (June '87)

Shadowgate is an icon-based graphic adventure. You, as the seed of prophecy, must save the world from the evil warlock. Far surpasses all others with great animated graphics, sound, and adventure. \$49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Dec '87)

Shanghai challenges players to clear a board of all 144 tiles by matching pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. \$44.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Nov '86) ★'86 Eddy

Snake-Bar lets you guide a snake (or train or semi) through a maze, picking up objects that feed and make your snake grow. Options include changing languages, editing the maze, and an X-rated game. \$15 (shareware). Georges Malmound, 37 Bis rue des Abbesses, Montmartre, 75018 Paris, France. NCP (Dec '87)

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MINIFINDERS



Solitaire Royale is a collection of eight solitaire card games. The **★★★★** Tour mode cycles through each game. Tournament deals the same hand for several players. \$34.95. Published by Spectrum Holobyte, 2061 Challenger Dr., Alameda CA 94501. CP (May '88)

Space Quest is a three-dimensional, animated adventure in which **★★★★** you play a janitor in a dicey situation. All you have to do is get off your ship before it explodes and save the Eamon System. Runs on any Mac. \$49.95. Sierra On-Line, P.O. Box 485, Coarsegold, CA 93614. CP (Sept '87)

Star Fleet I: The War Begins! is a space opera of the Star Trek **★★★★** variety. Rise through the ranks from ensign to admiral in this serialized adventure. Requires 512K+. \$55. Interstel, P.O. Box 57825, Webster, TX 77598. NCP (May '88)

Stationfall is the sequel (finally) to Infocom's excellent Planetfall **★★★★½** text adventure. Reunited with Floyd and sent to pick up requisition forms, you must solve the empty space station problem. As straightforward as other Infocom games; more so than some. \$39.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP (Nov '87)

Strategic Conquest Plus challenges you to discover an unexplored **★★★★½** world and conquer it by manufacturing and deploying armies, ships, and planes. A two-disk game that doesn't support an external drive. Requires 512K+. \$59.95. PBI Software, 1111 Triton Dr., Foster City, CA 94404. CP (Feb '88)

Sub Battle Simulator is a superior naval combat game. Sixty differ- **★★★★** ent missions and the ability to link missions keep it from ever getting boring. Requires 512K+. \$39.95. Epyx, P.O. Box 8020, Redwood City, CA 94063. NCP (Aug '87)

Tass Times In Tone Town is a slightly off-the-wall graphic adven- **★★★★½** ture in which you need a flashy hairdo and a jumpsuit before you can get anywhere, and you pay for things with guitar picks. Decent puzzles, with a sense of humor. \$4.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Jan '87)

The Toy Shop is a construction kit for building 20 different working **★★★★** model toys. Some parts can be customized. Manual gives clear instructions, but many toys are too complex for a child. \$49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov '86)

Trust & Betrayal: The Legacy of Siboot requires negotiating with **★★★★½** six artificial personalities in a struggle for power — not surprising considering that it comes from the maker of Balance of Power. Uses hieroglyphics to communicate in a fantasy world. Requires 512K+. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Mar '88)

Ultima III allows up to four characters cooperate to explore the vast **★★★★½** wilderness of Sosaria. \$59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

Uninvited is an icon-based adventure game set in an extremely **★★★★½** haunted mansion. Since you access the parser by double-clicking, command choices are always visible — you don't waste time trying to figure out which words the program understands. It has animation and sound. \$49.95. Mindscape, 3444 Dundee, Northbrook, IL 60062. CP (Sept '86) ★'86 Eddy

Wizardry is an outstanding dungeon exploration adventure pit- **★★★★½** ting a party of up to six characters against the guardian

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monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. \$59.95. Sir-Tech, Charlestown-Ogdensburg Mall, P.O. Box 245, Ogdensburg, NY 13669. CP

Xyphus is a role-playing game pitting four characters (fighters or wizards) against multiple scenarios that grow increasingly harder. Excellent Mac interface and icon control. \$39.95. Penguin, P.O. Box 311, Geneva, IL 60134. CP

Your Personal Poet creates personalized greeting cards on the Mac. Comes complete with four greeting cards and matching envelopes. Requires 512K+. \$29.95. Computer Poet, 775 E. Greg St., Sparks, NV 89431. NCP (June '87)

Zork II is where the adventure continues in the underground empire. A wandering wizard keeps things interesting, though there's a way to beat him if you persevere. \$44.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP

Zork III is the final chapter in the trilogy. Players come up against the ultimate enemy — the Dungeonmaster himself. More closed-ended than previous Zorks. \$44.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP

MUSIC

Alchemy loads and edits digitally sampled sounds from most commercial samplers. Works with 512K, but it eats up memory quickly. Requires MIDI or RS-422 interface, and sampler.

\$495. Blank Software, 1477 Folsom Street, San Francisco, CA 94103. CP (Oct '88)

Apple MIDI Interface is a simple Musical Instrument Digital Interface with a 1 megahertz clock rate. Has only one MIDI input and one output. Works with all Macs; adaptor required for 128K and 512K. \$99. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (June '88)

Beaverton D-50 Editor/Librarian is one of the most innovative but least intuitive editor/librarians available for the Mac. Randomization masks, Crosstalk system, Universal Algorithmic Slider. Version 1.01, \$199. Beaverton Digital Systems, P.O. Box 1626, Beaverton, OR 97075. CP (Oct '88)

ConcertWare+ is an enhanced version of ConcertWare. Has different instruments and can use any four of a set of eight at any point in a piece. Supports Adobe Sonata music font. \$69.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec '87) ★'85 Eddy

ConcertWare+MIDI is a composition and transcription program that can record multiple notes from a MIDI keyboard. Easy to use if you read music. Handles eight tracks of eight voices each. Requires 512K. Version 4.0. \$149.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec '87)

Deluxe Music Construction Set lets you enter up to 48 voices on eight staves, and play the music through the Mac's internal speaker and/or via MIDI. Requires 512K+. Mac II and Multi-Finder hostile. Version 2.0 reviewed. \$99.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (June '88)

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MINIFINDERS



Dr. T's Roland D-50 Editor/Librarian is solid, reliable and entirely intuitive. Great sound auditioning. Little in the way of patch generation. Version 1.0. \$175. Dr. T's Music Software, 220 Boylston St., Suite 306, Chestnut Hill, MA 02167. CP (Oct '88)

Jam Factory is a program for performing complex manipulations on MIDI data in real time. Unique, entertaining, and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface, and MIDI synthesizer. \$189. Intelligent Computer Music Systems, P.O. Box 8748, Albany, NY 12208. CP (Oct '87)

Jam Session is a music program for those who think MIDI refers to the length of skirts. Without any skill, you can "Jam" with rock, jazz, rap, or country tunes. A sort of "Sing Along With Mitch" for the computer set. Requires 512K+. \$49.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903. CP (July '88)

Listen is an educational tool for ear training. It has both a piano keyboard and a guitar fretboard for the student to input notes, and offers a wide range of exercises. \$99. Resonate, P.O. Box 996, Menlo Park, CA 94026. (Jan '87)

M is a music composition and creation program that works with MIDI data in real time. Unique, entertaining, and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface, and MIDI synthesizer. \$219. Intelligent Computer Music Systems, P.O. Box 8748, Albany, NY 12208. CP (Oct '87)

Master Tracks Pro is a full-featured, second-generation MIDI sequencer that adheres to the Mac interface very well. It's the

first program to have graphic-controller editing. Needs patch chasing for professional use, but it's still a rock-solid program. \$350. Passport Designs, 625 Miramontes St., #103, Half Moon Bay, CA 94019. CP (Dec '87)

Music Mouse is a music program in a genre all its own. Called an "intelligent instrument," Music Mouse gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, etc. \$59.95. OpCode Systems, 444 Ramona St., Palo Alto, CA 94301. NCP (May '87)

Opcode D-50 Editor/Librarian is the industry standard in music editors. Comprehensive features including randomizing functions and Library and Bundle files. Poor screen layouts. Version 5.01. \$250. Opcode Systems, 1024 Hamilton Court, Menlo Park, CA 94025. CP (Oct '88)

Performer is the definitive MIDI sequencer, and is priced accordingly. Includes looping, SMPTE syncing, 32 simultaneous Ins and Outs, unlimited overdubbing, and compatibility with Professional Composer for transcription. Version 2.2. Requires MIDI interface and 512K+. \$395. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Jan '88)

Professional Composer produces performance-quality sheet music using Adobe's Sonata font. Scores can be created from scratch or imported from Performer (and can be exported to Performer for MIDI playback). Requires 512K+. \$495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Jan '88)

Softsynth creates sounds for additive synthesis samplers. Downloading from Mac to sampler is time consuming. Requires

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512K, sampler, MIDI interface. \$295. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct '88)

Sound Designer set the standard for editing samples on lower-cost samplers, but it still lacks real-time high-fidelity playback. Requires 512K, sampler, MIDI interface. Emax, E II, 2000/2002, DSS-1, \$900/\$495; all others, \$395. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct '88)

Studio Session consists of two programs, an Editor, and a Player, that produce music with six voices of digitized sound. Excellent program plus good manual make this a good buy. \$89.95. Bogas Productions, P.O. Box 6699, Terra Lina, CA 94903-0699. NCP (Aug '87) ★'86 Eddy

Turbosynth creates sounds for a digital sampler using modular synthesis techniques. Good harmonic spectral inverter. Lacks an easy method of multisampling. Requires 1 megabyte, sampler, MIDI interface. \$349. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct '88)

UpBeat turns the Macintosh into a front panel for a highly complex and versatile drum machine. Input patterns with mouse, MIDI keyboard, or drum machine. Requires 512K. \$150. Intelligent Music, P.O. Box 8748, Albany, NY 12208. CP (May '88)

Valhala D-50 Editor/Librarian is a reasonably solid program with clear editing features. Some incompatibilities with any DAS that access the serial port. Version 1.11. \$131.50. Valhala Music, P.O. Box 20157-MU, Ferndale, MI 48220. NCP (Oct '88)

HARDWARE & ACCESSORIES

AST TurboScan is a 300 dpi scanner with sophisticated graphics software. Scans at resolutions from 72 to 300 dpi. SuperScan software offers halftone, line art, and mixed modes. "Virtual memory processing" lets you scan images too large to fit in RAM. \$1,899. Requires 512K+. SuperScan software included. AST Research, 2121 Alton Ave., Irvine, CA 92714. NCP (Nov '87)

Classic Professional Graphics Display is a low-cost color monitor for the Mac II. Good value, but has an IBM-look about it. Green tint is annoying. Requires Apple video card. \$549. Classic Components, 1490 Artesia Blvd., Gardena, CA 90247 (June '88)

CMS S-140 SCSI Hard Disk is a very fast, high-capacity SCSI hard disk with a unity interleave and average access time of 18 milliseconds. Holds 140 megabyte. Help, file transfer, and tape back-up commands built-in. Hard Disk Partition is a useful DA. Comes with a 6 foot. SCSI cable. \$2,995. CMS Enhancements, 1372 Valencia Ave., Tustin, CA 92680. (July '87)

ColorVue SE is a video processor board for the Mac SE that lets you display 16 colors on an external RGB monitor. Slows up performance. \$695. Orchid Technology, 45365 Northport Loop West, Fremont, CA 94538. (Oct '88)

Data Frame 40XP is a very fast, very quiet 40-megabyte external SCSI hard drive. Comes with a good and complete set of utility software. About as fast as a SCSI drive can be. Requires SCSI port, 512K+, new ROM. \$1,899. SuperMac

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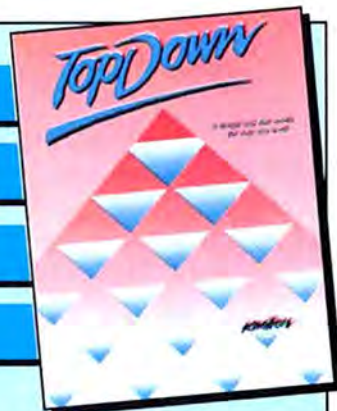
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Technology, 295 N. Bernardo Ave., Mountain View, CA 94043.

DaynaFile hooks up to a SCSI drive to read MS-DOS disks in the Mac environment. Use Mac applications to manipulate data created with an IBM PC. Comes in both 5.25 and 3.5 inch formats. \$595 for single floppy. Dayna Communications, 50 S. Main St., 5th Floor, Salt Lake City, UT 84144. (Jan '88)

★'87 Eddy

Felix is an optical-tracking graphics tablet that replaces a mouse. Precision mode gives pixel-by-pixel control. Doesn't collect dirt like a mouse does. The 6-inch square device is designed primarily for right-handed people. Works with Mac Plus. \$149. Lightgate, 6202 Christie Ave., Emeryville, CA 94608. (Sept '88)

FX-20 is a good 20-megabyte external hard drive. Good utility software. Reliable and reasonably quiet. Sits next to the Mac, has a large, oddly-shaped case. Requires SCSI port, 512K+, new ROM. \$1199. General Computer, 215 First St., Cambridge, MA 02142. (Feb '87)

Hard Disk 20SC is Apple's 20-megabyte SCSI hard disk. Reliable, fairly noisy unit. Good utility software, but no back-up yet. Requires cable and terminator (\$80). Requires SCSI port, 512K+, new ROM. \$1,299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb '87)

Hewlett-Packard ColorPro Graphics Plotter is an eight-pen desktop plotter that requires third-party software to drive it. Fonts are limited to an optional Graphics Enhancement Cartridge that requires some BASIC programming. \$1,295. Hewlett-Packard, 16399 W. Bernardo Dr., San Diego, CA 92127. (Feb '88)

HyperDialer provides an interface between a phone and your Mac so you can "dial" a number using one of the Rolodex-type programs, like SideKick, Focal Point or QuickDex. Hooks up between the Mac's sound port and a telephone handset. Requires 128K. MultiFinder friendly. \$39.95. DataDesk International, 7651 Haskell Ave., Van Nuys, CA 91406. (Sept '88)

ImageMaker shoots 35mm color slides direct from the Mac. Supports most presentation software. Uses patterns to represent colors. Not fully compatible with the Mac II. Requires 512K+. \$4,995. MacDriver software, \$149. Presentation Technologies, 743 North Pastoria Ave., Sunnyvale, CA 94086. (Feb '88)

IS/ONE tablet with **Penworks** software lets you use a corded or cordless pen or mouse and a high-res tablet for precise graphics input. Minor bugs with some applications and DAs. Keystroke macros can be launched from the tablet. Minimal documentation. Requires 1 megabyte+. \$595 to \$1145. Kurta, 4610 S. 35th St., Phoenix, AZ 85040. (Jan '88)

Jasmine Direct Drive 50 is a very quiet 1:1 interleave 50-megabyte hard drive and one of the fastest SCSI drives around. A small fan keeps it cool, but it's still quiet. \$1,159. Jasmine Technologies, 555 De Haro St., San Francisco, CA 94107. (Mar '88) ★'87 Eddy

LaserWriter II NT is Apple's mid-priced PostScript laser printer. It's faster than the LaserWriter Plus, with blacker blacks. Gray scale is less even than that of Plus. Requires 512K+. \$4,599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May '88)



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Laser Writer II NTX is Apple's top-of-the-line PostScript laser printer. 68020 chip makes it very speedy; expandable to 12 megabytes; SCSI hard disk can be attached for fonts. Requires 512K+. \$6,599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May '88)

LaserWriter II SC is Apple's low-end QuickDraw laserprinter. Can be upgraded to NT or NTX; reasonably fast. Requires 1 megabyte +. \$2,799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May '88)

MacADIOS II is a hardware and software interface for laboratory instruments. Standard configuration samples up to 142 kilohertz. Documentation is sketchy. \$1,290 for Macintosh II-ready data acquisition card; \$600 for MacADIOS II software interface. GW Instruments, 264 Msgr. O'Brien Hwy., Cambridge, MA 02141. (July '88)

MacBottom 45 SCSI and Internal Modem has a modem that fits into the top half of the 45-megabyte SCSI hard-drive case. Comes with HFS Backup and Eureka. \$1,795. PCPC, 4710 Eisenhower Blvd., Tampa, FL 33634. (Oct '87)

MacBottom HD21 is a very low (about 2 inches high), external 20-megabyte hard drive. Fits under the Mac. Very quiet, very reliable. Good utility software, including HFS Backup. Requires SCSI port, 512K+, new ROM. \$1,195. PCPC, 4710 Eisenhower Blvd., Tampa, FL 33634. (Feb '87)

MacIntizer is a graphics tablet and absolute positioning device that replaces the mouse. Various scales are possible. \$599. GTCO Corp., 7125 Riverwood Dr., Columbia, MD 21046.

MacLarger is a 12-inch external monitor for 512K machines on up to the SE. Displays the same number of pixels as an internal monitor, only one-third larger. Bigger and brighter, but less crisp than the Mac's own screen. \$449. Power R, 1606 Dexter Ave. North, Seattle, WA 98109. (Apr '88)

MacPacq transforms the Macintosh into a digital oscilloscope, waveform generator, and chart recorder. PacqManager is software expandable via external routines in Turbo Pascal and other languages. Version 1.03 reviewed. \$995. Biopac Systems, 42 Aero Camino, Goleta CA 93117. NCP (July '88)

MacRecorder is an easy-to-use sound digitizer. Includes software to turn sounds into HyperCard buttons, mix sounds, add special effects, and convert sound formats. Stereo recording possible on a Mac II. Requires 512K+. \$199. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. NCP (June '88)

MacSnap Plus 2 is a 2 megabyte memory upgrade for the Mac Plus. The board has 256 kilobit chips. User installable. Not compatible with existing big screens or internal hard disks, and can't be expanded further. \$729. Dove Computer, 1200 North 23rd St., Wilmington, NC 28405. (June '87)

MacTable is an elegant Danish worktable that holds a Mac and printer with room to spare. The 30-inch deep by 60-inch wide table is made of particleboard and must be assembled. Cabinet is optional. Table, \$289; cabinet, \$139. ScanCo-Furn, P.O. Box 3217, Redmond, WA 98073-3217. (Mar '88)

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MINIFINDERS



MacTablet is a stylus-driven graphics tablet. Users can easily sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. \$495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan '86)

MacTilt/MacTilt SE is a Mac (and external drive) holder that allows a full range of swiveling and tilting. Very strong, this well-made unit is also very easy-to-use. \$99.95. Ergotron, P.O. Box 17013, Minneapolis, MN 55418.

MacVision is a digitizer that uses an ordinary video camera for input. Capable of extremely fine results and special effects. Easy to use and well-documented. \$349.95. Koala, 269 Mt. Hermon Rd., Scotts Valley, CA 95066.

Mac-101 is a keyboard alternative that has a good feel to it. Has a keypad, 15 function keys, and more. The 101-Keys desk accessory lets you define macros. Comes in an ADB version for the SE and II. Requires 512K+. \$169.95. DataDesk International, 7650 Haskell Ave., Van Nuys, CA 91406. Software NCP (Apr '88)

Magic Digitizer is a hardware digitizer that works with video cameras. With LaserMagic software you can generate 300 dpi images (in PostScript). Requires 512K+. Digitizer with Magic software, \$399.95; LaserMagic software, \$49.95. New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706. NCP (May '87)

Microtek MSF-300C is a 300-dpi flatbed scanner. Really fast when used with optional MS-SCSI/C adapter. Comes with Versa-Scan Plus software (NCP) to scan and manipulate image. Saves images in a number of formats including TIFF and MacPaint. \$1,895. Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247. (Dec '87)

Migent Pocket Modem is a 300/1200 baud portable modem about the size of a 3-X-5 index card. Comes bundled with MacTerm 2.0, Borland's telecom DA. Manual is confusing, and tech support is minimal. \$259. Migent, 865 Tahoe Blvd., Incline Village, NV 89450-6062. (Nov '87)

Mouse Mover is a mouse pad-type surface that snaps onto the bottom of the mouse like a roller skate, freeing it up to glide over desk or mouse pad with ease. 99 tiny ball bearings at three strategic points. Mouse glides faster and saves on mouse wear and tear. \$19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311. ★'85 Eddy

Moustrak is a fabric-covered foam mousing pad. It will increase the efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desktop environment. \$10. Moustrak, 3047 St. Helena Hwy., St. Helena, CA 94574.

NetModem is a 1200-baud modem that can be accessed by all users on an AppleTalk network. The modem's display lights and the dial tone are simulated on-screen. Requires 512K+. \$599. Shiva, Suite 1200, 222 Third St., Cambridge, MA 02142-9919. (Feb '88)

NoLabelSystem is a plastic permanent labeling system in which users slide new tabs into a transparent plastic case on the disk. The tabs stick out of the case slightly, making them easier to read while in the drive. \$19.45. Weber & Sons, 3468 Hwy. 9, Freehold, NJ 07728.

One Plus One is a user-installable memory upgrade for a Mac Plus. Adds 1 megabyte of RAM to the 1M already there. Simple one-evening project. Includes MacBreeze, an excellent small fan. Requires Mac Plus. \$375. Levco, 6160 Lusk Blvd., San Diego, CA 92121. (Aug '87)

Personal LaserPrinter is a non-PostScript laser printer at a great price. Clumsy workarounds required in some applications. Printing can be slow. Requires 1 megabyte +. \$1,999. Fonts Plus, \$299. General Computer, 580 Winter St., Walham, MA 02154. (Apr '88)

Personal Writer PW15 S is a tablet-based handwriting recognition system that also allows graphics and macros. Number of misread characters is too high for general word processing. Requires 1 megabyte +. \$895. Personal Writer, 1801 Ave. of the Stars, Los Angeles, CA 90067. Software NCP (Mar '88)

PhoneNET is an AppleTalk-compatible network. Network can be up to 3,000 feet in length. In-place, unused phone cabling can be used for network, and can be combined with AppleTalk on the same network. \$49 per node. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec '86) ★'87 Eddy

ProPoint replaces the mouse with an ADB trackball. Works better on the SE than it does on the Mac II. Lefties will find the button positions uncomfortable. Requires SE or Mac II. \$139.95. Abaton, 48431 Milmount Drive, Fremont, CA 94538. (Oct '88)

QMS Colorscript 100 is the first color PostScript printer that uses a four-color thermal wax transfer technology. Works on AppleTalk. Excellent typographic capability. Currently supports only a handful of applications. Requires 1 megabyte. \$24,995. QMS, 1 Magnum Pass, Mobile, AL 36618 (Oct '88)

QMS-PS 810 is an eight-page-per-minute, 300-dpi PostScript laser printer that competes with the LaserWriter NT. 2 megabytes of RAM is standard; upgradable to 3 megabytes. Emulates H-P LaserJet, 7475 (HPGL), and Diablo 630. \$5,495. Laser Connection, 7852 Schillinger Park West, Mobile, AL 36608 (July '88)

QuickShare adds a SCSI port to an IBM PC for easy connectivity with a Mac. Can use an IBM's hard disk to run Mac applications. Requires SCSI port. Mac II and MultiFinder friendly. Version 1.24 reviewed. \$465. Compatible Systems, P.O. Drawer 17220, Boulder, CO 80308. (June '88)

Radius Accelerator 25 can make your Mac SE run 50 percent faster than a Mac II. The add-in accelerator card has a Motorola 68020 CPU that runs at 25 megahertz, and an optional 25 megahertz 68881 math coprocessor. \$1,695; \$2,195 with optional 25-megahertz 68891. Radius, 404 East Plumeria Drive, San Jose, CA 95134. (Oct '88)

SuperRam 2 and **SuperRam 4** are 2- and 4-megabyte RAM upgrades. Should be dealer installed but can be (carefully) user installed. SuperRam 2 includes RAM adaptor module, 1-meg memory module, modified power cable, jumper and fan. SuperRam 4 adds power supply booster and two 1-meg memory modules. Not compatible with most big screens. \$499. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (Oct '87)

Tektronix 4693D Color Printer is a 300 dpi bit-mapped color printer. Colors look smooth and rich. Uses bit-mapped screen fonts; most type has noticeable jaggies. Requires Mac II with color monitor. Recommended 8-megabyte configuration, \$11,490. Tektronix, P.O. Box 500, Beaverton, OR 97077. (Oct '88)

ThunderScan replaces the ribbon cartridge in an ImageWriter, which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. \$249. Thunderware, 21 Orinda Way, Orinda, CA 94563. ★'85 Eddy

TimeWand is a bar-code reader with a built-in time/date stamping clock. Can be used with TimeWand Manager software, a database that's extensive though difficult to use. Poor docs, but good support. Requires 1 megabyte +. TimeWand 2K version, \$198; TimeWand Manager, \$489. Videx, 1105 NE Circle Blvd., Corvallis, OR 97330-4285. (Dec '87)

TV Producer is an add-in card that overlays Mac graphics and text onto a video signal. Software is clumsy to use. Requires Mac II, Apple video card, and video source. \$599. Computer Friends, 14250 NW Science Park Dr., Portland, OR 97229. Software NCP (May '88)

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2. MBC&E HALF-DAY PROFESSIONAL TUTORIALS

Macintosh in Corporate A/V Production

(Nov. 2; 8:00 - 12:00. Code: PT-1)

From storyboarding to finished product: incorporating mixed media to create first-class training and marketing tools.

Macintosh in Accounting & Finance

(Nov. 2; 1:00 - 5:00. Code: PT-2)

Bookkeeping, invoicing, purchasing, financial analysis, inventory control and office compatibility issues.

Macintosh in Admin. & Management

(Nov. 3; 8:00 - 12:00. Code: PT-3)

Business planning, project tracking, personnel and resource management. For managers in all business areas.

Macintosh in Sales & Marketing

(Nov. 3; 1:00 - 5:00. Code: PT-4)

Client/prospect tracking, contact prioritizing, report generation and analysis: in short, how to use Macintosh to make the sale.

The MBC&E Hands On Business Software Series

Professional, four-hour hands-on tutorials, led by experienced workshop leaders. Learn how to become a "power" user of the top-selling Macintosh packages. (The Macintosh Overview is designed for newcomers to Macintosh technology. Other sessions assume some familiarity with Macintosh; they are designed for beginning to intermediate users of these packages, except where noted.)

PT-5 Macintosh Overview (11/1; 8:00)

PT-6 Hands On *Excel* (11/1; 8:00)

PT-7 Hands On *Microsoft Works* (11/1; 1:00)

PT-8 Hands On *HyperCard* (11/1; 1:00)

PT-9 Macintosh Overview (11/2; 8:00)

PT-10 Hands On *Excel* (for intermediate to adv. users; 11/2; 8:00)

PT-11 Hands On *HyperCard* (for intermediate to adv.; 11/2; 1:00)

PT-12 Hands On *MacDraw* (11/2; 1:00)

PT-13 Hands On *PageMaker* (11/3; 8:00)

PT-14 Hands On *Crickit Presents* (11/3; 8:00)

PT-15 Hands On *Adobe Illustrator* (11/3; 1:00)

PT-16 Hands On *MacProject II* (11/3; 1:00)

3. FULL-DAY EXECUTIVE SEMINARS

The Power Macintosh Office: A Complete, No-Nonsense Guide

(Repeated Nov. 1 & 2; 8:00 - 3:30. Code: ES-1 and ES-2)

Hardware configurations, networking, E-mail, training, software and security issues: Everything you need to know to launch and administer the Power Macintosh Office. Why learn important lessons and strategies the hard way? This Executive Seminar can save months of indecision and thousands of dollars for your business.

The MIS/DP Connectivity Round-table

(Nov. 3; 8:00 - 3:30. Code: ES-3)

Making Macintosh work with an existing corporate DP/MIS environment: an interactive lecture/demonstration. Connectivity issues, prototyping, HyperCard as dashboard: this Seminar will help you seamlessly integrate Macintosh with your current MIS/DP structure.

4. TICKET OPTIONS

Choose one of the following:

A. Full-Day Executive Seminars

	Reg. Price	Advance Discount Price
<input type="checkbox"/> ES-1 Power Macintosh Office - 11/1, 8:00 AM	\$495*	\$395*
<input type="checkbox"/> ES-2 Power Macintosh Office - 11/2, 8:00	\$495*	\$395*
<input type="checkbox"/> ES-3 MIS/DP Roundtable - 11/3, 8:00	\$495*	\$395*

B. Half-Day Professional Tutorials

<input type="checkbox"/> PT-1 Corporate A/V Prod. - 11/2, 8:00	\$295**	\$225**
<input type="checkbox"/> PT-2 Accounting & Finance - 11/2, 1:00 PM	\$295**	\$225**
<input type="checkbox"/> PT-3 Admin. & Management - 11/3, 8:00	\$295**	\$225**
<input type="checkbox"/> PT-4 Sales & Marketing - 11/3, 1:00	\$295**	\$225**
<input type="checkbox"/> PT-5 Macintosh Overview - 11/1, 8:00	\$295**	\$225**
<input type="checkbox"/> PT-6 Hands On <i>Excel</i> - 11/1, 8:00	\$295**	\$225**
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<input type="checkbox"/> PT-9 Macintosh Overview - 11/2, 8:00	\$295**	\$225**
<input type="checkbox"/> PT-10 Hands On <i>Excel</i> (Adv.) - 11/2, 8:00	\$295**	\$225**
<input type="checkbox"/> PT-11 Hands On <i>HyperCard</i> (Adv.) - 11/2, 1:00	\$295**	\$225**
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<input type="checkbox"/> PT-13 Hands On <i>PageMaker</i> - 11/3, 8:00	\$295**	\$225**
<input type="checkbox"/> PT-14 Hands On <i>Crickit Presents</i> - 11/3, 8:00	\$295**	\$225**
<input type="checkbox"/> PT-15 Hands On <i>Adobe Illustrator</i> - 11/3, 1:00	\$295**	\$225**
<input type="checkbox"/> PT-16 Hands On <i>MacProject II</i> - 11/3, 1:00	\$295**	\$225**

C. Three-Day Conference & Exhibits

<input type="checkbox"/> CE Including Vertical Market Case Studies	\$125	\$95
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D. Three-Day Exhibits Only

<input type="checkbox"/> EO Including Keynotes	\$40	\$25
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**Includes three day Conference and Exhibits. Individuals may attend a second Tutorial for an additional \$95.

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


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7. IMPORTANT

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SCRaPBOOK

EDITED BY KRISTI COALE
AND JON ZILBER

LIFT-OFF

Maintaining a good relationship with your Mac can be a question of degree — as in angles, that is. Looking at your screen can be a pain in the neck. Literally. Having the right tilt to your Mac is essential, and many companies have developed new platforms for your favorite platform, although they don't all come cheap. (*MacUser* has a budget solution — a stack of back issues, which our circulation department will be happy to discuss with you. But if you want to keep your back issues of *MacUser* handy for reference, here are two other inexpensive options that might fill the bill.)

MacIncline is a very decorative tilt alternative to TAYCAR Enterprises. With its sleek, black anodized finish, MacIncline will add a little class to your work space along with a little elevation (two inches — a 12-degree tilt) to your Mac. It also saves your furniture, since it comes complete with little rubber feet to prevent it from sliding on your table top. You really have to appreciate the craftsmanship that goes into this product — each one is made by hand at the TAYCAR plant in Albuquerque. MacIncline costs \$17.95, postage included.

Cordry-Berg Enterprises gives you MacLift, a color-coordinated platform. Like

Ruffles potato chips, MacLift has ridges. Only these ridges give you a choice of five different angles (up to 12 degrees) at which to tilt your Mac. MacLift is designed such that its shape and color make it look like an extension of the Mac. Cordry-Berg even used the same plastic Apple uses for its Mac casings. MacLift is lightweight and easy to transport. You'll also like the lightweight price, \$12.95.

Both models can be used with everything from a 128K Mac on up to the SE. For more information on MacIncline, contact TAYCAR Enterprises at 111 Vermont NE, Albuquerque, NM 87108; (505) 265-2121. For MacLift, contact Cordry Enterprises, 134 Avenue Pelayo, #2, San Clemente, CA 92672; (714) 361-2557. And remember, don't look down on your computer, let your Mac look up to you.

— Kristi Coale



EDIFICE COMPLEX

Ferdinand Marcos sure could've used this Edifice. And not just as a place to hide.

Government officials need help managing their office and administration. And if they don't have Nancy Reagan around, Edifice from Stagecoach Technologies is pretty handy. An integrated solutions program incorporating principles from Microsoft Works, BPI General Accounting, Business Filevision, Focal Point, PageMaker, and MacNET, Edifice lets government bigwigs manage their administrative and business needs.

Doing more with less, the government official is expected to make his office more productive. Focal Point provides a daily appointment calendar (great for scheduling naps) and an auto phone directory for reporting expenses, which are recorded by the accounting feature. The Wedtech Gang sure could've used the constituent-tracking capabilities provided by Works to keep up on contributions. The telecommunications feature, based on MacNET, gives the official access to information on local, regional, and national databases, information services, and BBSs — great for



Apparently, the marketing kids over at Spectrum HoloByte slept through the '60s. Their spokeswoman, Terna of the planet Donora, has been gracing (if that's the word) recent trade shows in full regalia (overflowing, actually) as a living testimonial to Apple's slogan: "The power to be your bust."

— Jon Zilber

keeping track of little things like, say, arms sales to Iran.

And if all this organization weighs you down, think of it as good practice for Douglas Adams' game *Bureaucracy*. You're sure to be a winner in this game, even if you lose the election.

Edifice is available for your campaign for a mere \$1,495 — a mere drop in the slush fund. And make sure you make a record of it (for shredding purposes later). For more information, contact Stagecoach Technologies at 1650 East Bethany Home Road, Phoenix, AZ 85016; (800) 882-7243 or (602) 266-1179.

— Kristi Coale

SCRaPBOOK

Les HAUTES “ ” QUOTES

Comments from the dais at a recent Symantec product announcement:

“MORE is the ultimate yuppie MBA weapon.”

— Jean-Louis Gassée, France's funniest export since de Gaulle.

“You remember the Ile. That's the computer Apple used to make — until they decided that computers don't need big screens or color or slots.”

— Harry Anderson, the funniest software developer who performs magic and has his own network sitcom.

“It was so cute, I had to have one. You could put it anywhere. It looked great in the kitchen; it looked great in the bathroom — it looked like it was designed by Krups.”

— Harry Anderson, the funniest software developer who performs magic and has his own network sitcom, on his first impressions of the Mac.

“The problem with the 128K was it spent so much time being friendly that it didn't have time to do much else. It was like a friend who drooled on your shoes.”

— Harry Anderson, the funniest software developer who performs magic and has his own network sitcom, on his second impressions of the Mac.

“Just Enough Pascal is the sequel to Not Enough Pascal; the last part of the trilogy will be called Too Much Pascal.”

— Spencer Leyton, former Symantec Vice President, vying for Harry Anderson's title.

PUTT 'ER THERE

A hush comes over the crowd as you prepare to putt on the eighteenth green. You sink the putt! The crowd cheers — you've just won the Doral Ryder Open for the third time this afternoon. Content with your achievements, you switch off your Mac and go to the fridge for the Nineteenth Hole.

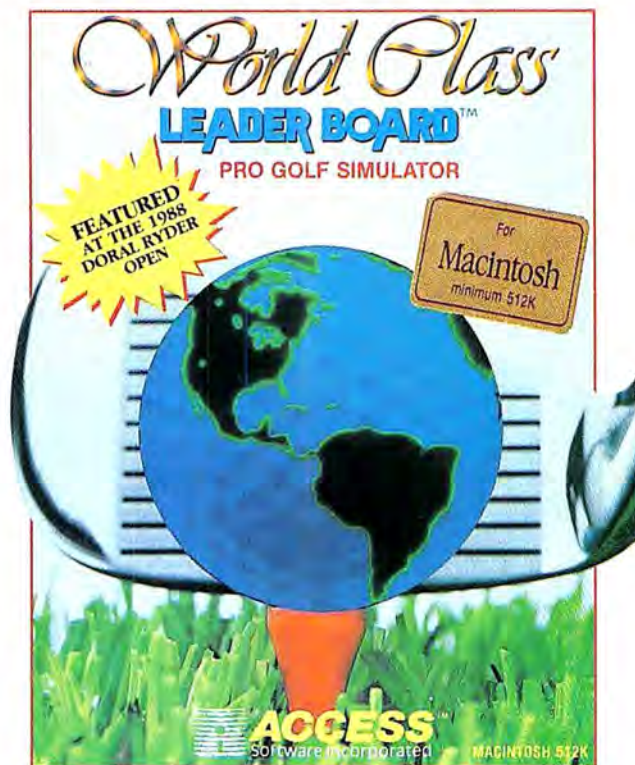
Call it the Doral Ryder Open, call it the U.S. Open, but what we're really talking about here is World Class Leader Board — a pro golf simulator for the Mac. You can play by yourself or with as many as four people on one of four courses: Champions Cypress Creek, Doral Country

Club, St. Andrews, or Gauntlet Country Club. Is your game not up to par? You can choose your ability level: Kids, Amateur, and Professional.

The great thing about this game is that you can use the Course Architect feature to edit out trees, bushes, and other obstacles that seem to get in your way as you battle your way to the green. You can also use this feature to create your own course. This game requires 512K to run and sells for \$49.95.

For more information, contact Access at 545 West 500 South, #130, Bountiful, UT 84010; (801) 298-9077. See you on the driving range!

— Kristi Coale





I'm sorry to see that you have
an expensive, high-tech
doorstop.

Sheesh



OK, I'll believe you're sorry, but you'll have to excuse me if I find you somewhat less than sincere. That's probably about how Dan Eggleston of Austin, TX, felt when he bumped into this goodie while noodling around in Snapshot. We believe in recycling, but this may be pushing things a little too far. So we've sent Dan a check for \$25. Now he can go out and buy a real doorstop.

If you've found a dialog box that's made you want to laugh, cry, scream, or watch "Laverne and Shirley" reruns, save a copy of your screen in MacPaint format (Command-Shift-3) on disk, so we can reproduce it here at the office. Print your best shot and send it to Dialog Herb, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404.

— H.D. Plant

PUTTING IN FOR A TRANSFER

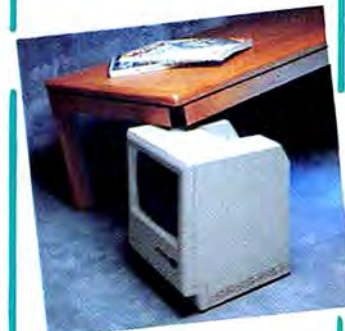
"Well, I'll try to transfer you, but just in case we're cut off, her direct extension is..." Who are you trying to kid? You don't mean "just in case we're cut off"; you mean "I don't have the faintest idea how the darn thing is supposed to work."

You're not alone. Some corporate PBX telephone networks have as many as 400 features — and who can remember how to use them? MacPBX, that's who. MacPBX is an application and DA that remembers the codes for all of your special features — like call transferring, forwarding, conference calling, and so on — and stores frequently called numbers and extensions (with space for jotting down "tickler file" information, like the client's spouse's name, or a reminder to call back next week). All you have to remember is how to click on a HyperCard-like button.

MacPBX includes a hardware interface that lets the system connect to nearly any analog PBX (including models from

AT&T, and Rolm) through your Mac's sound port (your serial ports remain free). The price per phone is steep — \$249 — but it'll put a stop to those expensive wrong-distance calls. For more information, contact Studio Master Systems at 17630 Northeast Eighth Place, North Miami Beach, FL 33162; or call (305) 653-4500.

— Jon Zilber



THE 128K MAC

Don't put that old 128K Mac out to pasture. It may not be any good for MultiFinder, WordPerfect, PageMaker, Illustrator 88, or that HyperCard thing you've heard tell of lately, but let's not quibble. There's still plenty of life in the old girl yet. Here, based on data from the home office in Milwaukee (we sublet it for a song when NBC vacated it), are the top ten things a 128K Mac can still be used for.

1. Providing a sturdy case for one diskette.
2. Cracking walnuts.
3. Running programs without that nasty loud fan noise.
4. Justifying the existence of your ImageWriter I.
5. Serving as a template for tracing rather large squares.
6. There is no item No. 6.
7. Cracking walnuts.
8. Propping up a very wobbly table or replacing your worn-out barbells.
9. Cracking walnuts.
10. Writing this list (and checking it twice).

— Jane Berliss

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☐ h) 50 or more

3. Your primary job function is (Check one):

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☐ s) Database Managers ☐ 1) Monitors
☐ t) Graphics ☐ 2) Disk/Tape Back-up
☐ u) CAD/CAM ☐ 3) Add-in Boards
☐ v) Communications ☐ 4) Communications

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IDEAS

We wouldn't want to say that what follow are the rejects from our monthly Tip Sheet section. They are, but we wouldn't want to say it. You'll get \$10 if we publish your putative tip here — and you can't win if you don't enter, so send 'em in to Bright Ideas c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404.

WORK IS HECK

Bored at the office? Tired of interruptions by the usual gabby crowd at the drinking fountain? Here's how you can get



more use out of an old disk box (Sony seems to work best) and alleviate your problems. You'll get better results from this trick if the box is empty, so remove the disks. Fit the lid on until it is barely on the box (one inch from the top). At the peak of conversation or monotony, forcefully push the lid down, being careful not to cover the lid with your whole hand. This must be done quickly. The result? A loud noise which

stops the most annoying chatter, allowing you to get back to work with a smile. The noise can only be described as unique. The technique does take some practice to perfect, but the skill is well worth the effort.

Elliot Loh
Somis, CA

BUG OF THE



MONTH

It's a round, round, round, round world. Christopher Columbus believed that. So did Clark Higgins — at least until he started using HyperCard's round function. Clark's discovery may not have opened a new world, but it nearly drove him 'round the bend.

Clark is a developer, and one of his projects was a HyperCard calculator that converts film frames to video frames and back again. The only problem was that he ran into HyperCard's bug in the process.

For even numbers followed by .5 (say, 2.5), HyperCard rounds *down* (in this case, to 2). But when an odd number is followed by .5 (say, 3.5), HyperCard rounds *up* (to 4)! This inconsistency had Clark checking his addition several times. And it got to the point at which he started wondering if one plus

one really does equal two.

We gathered some of our best minds and confirmed that not only does one plus one equal two but also HyperCard doesn't round consistently.

To pay him for his troubles, we sent Clark a check for a nice, round \$25 (no, we didn't round it up to \$26). If you've come across something equally peculiar, let us know. Send your bugs to Buggy, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. And make sure you tell us your System and Finder versions, hardware configuration, and any unusual DAs or INITs you may have installed.

— H.D. Plant

DO YOU KNOW ME?



The new gold standard?

The Man with the Golden Arm?

Midas's revenge?

The lovechild of Goldfinger and Shirley Bassey?

We don't know either, but he's mad as hell and isn't going to take it anymore!

HIT LIST

In case you were out of town, here's Egghead Discount Software's list of the ten top-selling Mac programs for July.

1. Microsoft Word
2. Microsoft Excel
3. TOPS
4. Microsoft PowerPoint
5. Microsoft MacDraw II
6. Claris
7. Chuck Yeager's Advanced Flight Trainer
8. Electronic Arts Symantec Utilities for Macintosh
9. Symantec PageMaker
10. Aldus Quicken
11. Intuit FileMaker II
12. Claris

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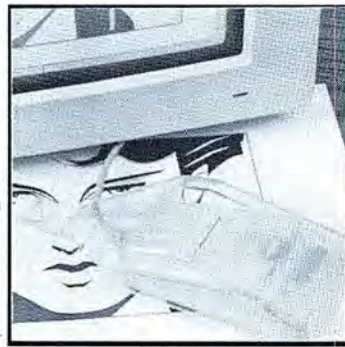
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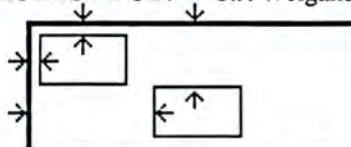
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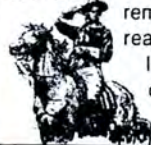
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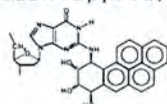
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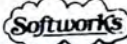
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by John C. Dvorak

The Disk 8 Disaster

I had received a Mac II and was about to move my SE files to it. That's when I found out that Apple had just had some sort of fancy party at a San Francisco mansion. It was held to introduce the media to the new PR people. I wasn't invited and neither was a friend of mine who was an editor at the now-defunct *Macintosh Today*. In fact, a lot of brand-name writers who should have been invited didn't hear about this event. I knew why and cringed.

Fact is, Apple is getting ragged around the edges. I first noticed this at last year's Macworld Expo when top Apple spokeswoman Barbara Krause invited me to some Apple party at the Boston Harbor Aquarium. "Don't worry about it if you don't have an invitation," she told me. When I arrived I was stopped by a couple of those new Apple promotion gals who demanded to see an invitation. When I referred them to Barbara Krause, each of them looked at me with that vacant look you see in a lobotomy patient, and each said they'd never heard of her. I was shooed away, and the gals continued chatting about their boyfriends. I figure the new gals there have to take a test to get these jobs. First, they have to answer the question "Should your nail polish *always* match your lipstick?" (Answer: "Well, of course!") Then, they have to prove that they can pop gum while chewing it and saying the sentence "It's, like, totally cool!" Finally, they are asked to spell the word *ditz*. If they can't spell it, they get the job.

The "Vacancy" sign is lit in the eyes of too many Apple employees nowadays. A reflection of a pattern, I'm afraid. With this in mind, I took on the Mac II. The pattern was also there.

It's not that most of the software that ran fine on the SE failed to run on the Mac II. No big deal. I scrounged around and updated as I should have before. This only took a week. I also shook my head when I wanted to use my \$2,000 collection of Adobe fonts on the Mac II and discovered that none of them worked. "You need the new versions," I was told. Holy Mackerel. Pity the poor fellow who can't mooch a free copy, like some columnists do.



What really galled me, though, was the Apple HD Backup program. (It's when I really have to sit down with these machines and work with some of the mediocre software that my blood boils. No wonder I do most of my work on an IBM machine.)

Here's my story. I wanted to put all the stuff from my SE onto the Mac II. I used the Apple HD Backup program to back up the SE. The SE was now gone, and the Mac II awaited the disks. I began. First, I was annoyed that the machine insisted I boot from a floppy. There seemed to be no way around it if I was going to load the new hard disk from scratch. OK. No big deal. I booted from a floppy, then loaded HD Backup.

I followed the prompts and started to pump the disks in one by one: 1, 2, 3, 4, 5, 6, 7 — only 13 more to go. Suddenly, a problem. The program couldn't read a sector on disk 8. It asked me to pop in the boot disk. I did so, and the machine quickly popped it back out and asked me to put in disk 8. I did so. It read a few sectors and asked me to put the boot disk in again! Hey, wait a minute. What's all this malarkey? I've got *five megabytes* of memory in this thing. Why did it keep asking for the hoot disk simply to re-

display the same error message over and over? Shades of the 128K Mac.

It was obvious that it would read in each file on disk 8 one at a time, and between each read I'd have to pop in the boot disk so it could tell me over and over that there was a problem with disk 8. It was ridiculous.

OK, I figured that I'd go along with the program this one time. In, out, in, out, in, out, in, out. Go for coffee. Return. In, out, in, out, in, out, etc., etc. How ludicrous.

As time progressed I sensed the end of this absurdity. Then it happened. The program read the last file from disk 8. It asked for the boot disk for the last time. The drive turned on, and up on the screen popped the message: **BACKUP COMPLETE!**

What?! I had 12 more disks to go. I couldn't believe it. I tried to rerun the program and have it skip disk 8. No dice. I tried to start with disk 9. Nice try. I tried this and that. Nothing worked. I was mad. If there is a worse backup program than this one, I'd like to hear about it.

Mumbling to myself, I ran the option to transfer a single file from the backup program. This way, I figured I could salvage a few files. Unfortunately, this program is so dumb that you can't select, say, five programs at once and send them over. You either do them all (which was prevented by disk 8) or do them one at a time from a menu that resets itself each time. I was sickened by it. Finally, I got enough stuff over to keep me happy, although I realized that some good stuff was left in the pile of 20 disks. I don't have them indexed and don't have an eternity to scrounge through them, so I guess the programs are lost.

The irony of this story amuses me. I'm probably better off without all the excess files and programs that were on the SE. I'm pared down. Lean and mean. I have all that I really need. Thinking back, I probably couldn't have attended the party in San Francisco and didn't really mind being shut out of the Boston Aquarium, either. There are better ways to spend time than goofing off at meaningless events.

So it seems that in some bizarre way, someone else's incompetence pays off. At least it does for me. Sorry to say, I doubt that it pays off for Apple. ☐

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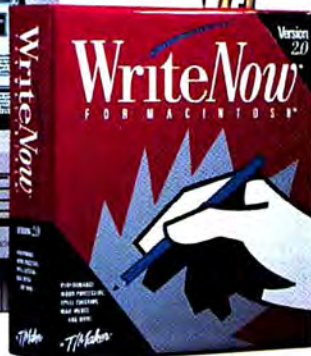
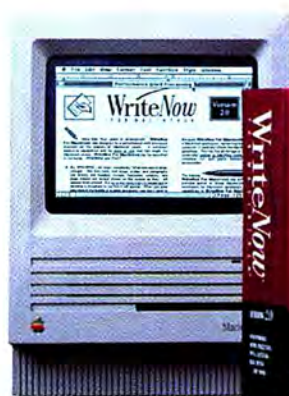
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All timing tests performed by an independent testing organization on a 12-page document using a Macintosh SE and a 20 megabyte hard disk.

* Number determined by Macintosh system constraints.

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Demo version of WriteNow included on all Jasmine hard drives.



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